RECEIVED
JUN 27 2016
City of Oakland
Planning & Zoning Division

CASEFORNATURALENERGY.COM

27 June 2016
City of Oakland
Department of Planning & Building
250 Frank H Ogawa Plaza
Oakland, CA 94612

Dear Sir or Madam:

The contents of this letter is submitted as issues/evidence in support of Terminal Logistics Solutions (TLS) for their case which is "unconstitutionally" going before the Oakland City Council later today. It is our intent to provide this information so that TLS may use it in follow-on court challenges.

The City of Oakland's policy for information submittal is a broad brush attempt to avoid legal challenges to what City of Oakland lawyers ***know is an unconstitutional proposal. Commerce between the states is regulated by the federal government, not each respective state and their myriad public agencies***.

The public hearing notice of issues should read something like this:

"This is an arbitrary and capricious rule-making that violates the administrative standards under California law for rule-making as well as the City of Oakland's similar requirements. T***he proposal violates the Commerce Clause of the Constitution by discriminating against interstate commerce, as well as violating the California Constitution that reserves such regulatory power to itself.*** The wording of the proposal is vague and ***provides no standards for enforcement and leaves it to local officials to enforce it arbitrarily***. It is not uniform in that it singles out certain substances over others without any basis in fact in the record or in logic and it is devoid of any factual basis for the regulation. ***It further infringes on the permitting, regulatory and water quality jurisdiction and regulatory power of federal agencies."***

"***The mining, transporting. Storage and burning of coal are not illegal or prohibited. They are regulated by the federal government. As such the transport and storage of coal are protected by the commerce clause of the US Constitution.***

The City Council of Oakland has gone out of its way to stall and misrepresent the facts given to them with regard to TLS. In the 154 years coal has been transported through the United States and Oakland there has never been a single report linking coal to any health issue while in transit or storage. TLS has provided ample information to the Mayor of Oakland the City Council of Oakland as to how it would go "above and beyond" to mitigate any and all environmental and

safety concerns. Unfortunately, the obvious bias of the Mayor and members of the City Council prevented them from providing an objective look at this important issue. Instead, they decided to continue being puppets of the Sierra Club and their environmental surrogates without doing due diligence as the voters of Oakland deserve.

Shame on you Oakland! You're an embarrassment to the United States of America.

Sincerely,

NICOLE FALCHE

Review and Comment on:

Assessment of the Health and Safety Implications of Coal Transport through Oakland

June 16, 2016

Jae Potter Carbon County Commissioner

Price, Utah

Review Panel

The panel that put the **Assessment of the Health and Safety Implications of Coal Transport through Oakland** (the "Assessment") together is comprised exclusively of enthusiasts in the environmental community who make up the front lines of environmental activism in the East of San Francisco (the "Project Opponents"). The Panel/Project Opponents are neither independent nor objective. Plain and simple, the Panel is made up of those who are trying, at any cost, to keep coal in the ground. The cost in this case is any semblance of scientific method and rigor while assembling the various parts of this "assessment." Any panelist with a shred of scientific integrity should be ashamed of the methods used in this "assessment." At least they chose to call it an assessment in lieu of a "study." The "research" done and conclusions drawn in this "assessment:"

- are not balanced in any way. They do not present the full picture on any point and push an extreme case as if it were fact.
- propose numbers at the far tails of any normal distribution curve, and present them as the median or expected outcome, (when such extreme and rare events are presented as averages or medians, the "assessment" loses all credibility),
- presents no new evidence.

While some of the component elements drawn on in this paper may be reliable on their own, based on study and rigorous peer review, this "assessment" is a collection of every possible element that project opponents could find that might possibly appeal to the emotions of those who make public policy in order to make an adverse finding in the face of having no jurisdiction over the matter. The "assessment" was put together in such a biased and un-scientific manner, using emotion in lieu of facts, new or old, that there is little or nothing that may be concluded from this grand exercise. The only "big" result of the paper is the page count.

Panelists and endorsers:

- were almost exclusively drawn directly from the ranks of historic project opponents, and impassioned members of the activist environmental community. Additional endorsers were listed from hospitals specializing in pediatrics in order to add some emotional appeal to the City Council,
- were almost exclusively based in San Francisco and the East Bay (mostly associated with the City of Berkeley, UC Berkeley and extending to UC Davis),
- were not "independent" as claimed in the cover page on HumanImpact.org and their subsequent press release, nor are they unbiased. Many of the citations and studies used in the "assessment" were actually elements researched by the Panelists themselves. "Independent" research must be authored by unbiased experts whose own work is not included in the document.

Methodology – Scope

- The "assessment" contains no new work. It simply pieces together every possible piece of information that Project Opponents can gather and attempts to propose causal links to a forecast of bad health outcomes. In no case do any of these causal links hold up to even the lightest test of reasonable scientific integrity. The fatal flaws are many:
    - They combine diesel emissions with coal dust. There is no attempt to separate such elements. They argue that particulate levels are so poor in the subject City that any increase in any emissions will cause the effects they measure therein. The same outcomes could come from any one or more light or heavy diesel trains carrying coal, soda ash, hay cubes, sulfur, gravel, containers filled with televisions or containers filled with medical equipment. Using this simple logic, all trains should be banned. By not separating out diesel emissions from coal dust particulates they say are emitted from coal trains, the "assessment" makes an attempt but utterly fails to differentiate coal trains from all other trains. Yet Project Opponents have no issues with all other trains and have so stated. This then isolates their one objection, as it has always been, from the beginning; these are simply Global Warming Activists looking for some angle to stop coal from coming out of the ground. They have tried with this "assessment" by conscripting anyone in their ranks with the "public health" affiliation to sign on to this review of submitted evidence and "assessment" and they have failed to make the case.
    - The majority of words, pages and cites in the "assessment" are simply repeated elements to show how bad certain health outcomes are to residents. No doubt these have validity, but the mere mention or inclusion of these bears no impact on the lack of causal links to "coal" trains.
    - They present no new hard scientific studies that could cast light on the subject.
    - The "assessment" calculates estimates based on completely dishonest assumptions.
    - The "assessment" completely ignores the complete containment methodology stipulated by the sponsors.
- The Project Opponents did not review or use EPA criteria with respect to regulated and monitored rail transportation of bulk materials including coal. They would have found that the EPA already regulates the transportation of such products by rail, has regulations in place, and monitors compliance.
- A preponderance of the material included in the "assessment's" 147 pages is simply supplemental material that shows the degree of harm of health effects should such harm be caused, but has no bearing on the heart of the matter. The goal of the "assessment" was to prove causality using carefully-studied facts and hard scientific methods, but instead reverts to casting hopeful aspersions or seeking support through an abundance of pages. Fourteen pages in Chapter 1 fall into this category, as do 32 pages in Chapter 8, and the "assessment" ends with 38 pages of citations meant to add emotional gravitas of a large number of sources in lieu of solid scientific methods or any new evidence for Oakland City Council. Fully 84 of the 137 pages are outside the scope of the issue important to the Council. Only 53 pages remain in the Project Opponents' attempt to come up with something linking coal to bad local outcomes. And in the end, the "assessment" fails completely in that regard.

Meaningfulness of the Assessment

- The project Opponents, as embodied in this "assessment" are trying at any cost, including the sacrifice of the scientific integrity of the conscripted panel members and endorsers, to promote a level of fear in the Oakland City Council, in an effort to bring action, which by law, has no bearing on the operations of rail transport or marine-loading terminals for bulk products.
- Potential risks associated with such operations, to operators, employees and surrounding populations are under the exclusive jurisdiction and oversight of the EPA and workplace risks are under the exclusive jurisdiction of OHSA, both Federal Agencies. All operational aspects of rail transport and terminal operations of all bulk products, including coal are covered in the regulations of these federal agencies, require various proven techniques as to safe handling as well as exposures to the public, and are closely monitored by these agencies for compliance. All permits from these agencies that are necessary have been obtained.

Inaccuracies and Emotional Hyperbolae

Environmental NGOs have already added an additional layer of inaccuracy to this "Assessment," compounding the scientific errors and unproven causal links by hardening the "may"s, "might"s, and " likely"s" found in the study to "will"s, "should"s and "finding"s. They add emotional hyperbolae to poor causal science and send it out to all members of the press that have proven themselves friendly to "the cause" and who are willing to overlook thes gross flaws and wild accusations that are embodied in the "assessment."

- Human Impact Partners, an NGO operating at the highest levels of activism, and who ostensibly sponsored the Assessment, wrapped their own elevated and unsubstantiated summary to the "conclusions" of the paper: "Human Impact Partners collaborated with a panel of public health experts to conduct an independent study…." At least the actual panelists in the Assessment had the personal scientific integrity to stay away from definitive words like "study" and "independent" in describing the 'Assessment" as it was neither a proper study nor independent. Such thoughts for scientific and professional integrity do not seem to stop Human Impact Partners from purporting these as factual descriptors of the "work" done. Their press release again repeats "independent" and "study" when none of their own Panelists ascribe to such un-factual hype.
- The Press release attached to the "assessment" also dishonestly upgrades several terms stated by the Panel to much more certain proposed outcomes.
  - The word "study" is used several times in lieu of "assessment."
  - They used the word "independent" to describe the "assessment" when even the extremists on the panel refused to do so. The "assessment" could not be cast further from any semblance of independence.
  - The press release says that "coal trains would inevitably increase the frequency and severity of these poor health outcomes" when the panel only stated that the Panelists thought it "likely" that particulates in West Oakland would increase

with diesel and coal dust emissions, when they cannot distinguish between the two, and that because of this "likely" increase, health outcomes in West Oakland could "possibly" be more severe. It is clear that the language in the "assessment" is very weak and the marketing materials attached to the "assessment" take great liberties to rewrite the language in much stronger prose.

- These upgraded conclusions in the press release made by NGOs and politicians, say much about the efforts behind the opposition. They are not careful, nor are they accurate when describing anything related to their "cause." The takeaway is that while the "assessment" was at best, a poor scientific effort and has little proof that there is some additional risk not thought of already by the Federal regulators that actually have jurisdiction in the matter. It is clear that by sheer girth of the page count and the numbers of Panelists and Endorsers, project opponents will now market this "assessment" to the masses as some kind of hard scientific piece, and will boldly mislabel it as an "independent study." It seems any action, however disingenuous or dishonest, is deemed proper in support of their "cause." In the summary, we also see highlighted an impassioned plea to be aware that "There is a narrow window during which actions around the world can be taken to prevent catastrophic climate change…." This is the heart of their issues. It is not about coal dust in West Oakland. It is about their cause.

- Review of Chapters

  - Chapter 1: Resiliency, Vulnerability, and West Oakland
    - This is not a chapter linking the materials presented to coal – The arguments in this Chapter stand alone and must be linked to the "coal train" element in other Chapters. No such thing is done here. This Chapter is all about establishing a focus of fear for the less-economically-resilient sector of the City. It is nothing more than a cover for the unscientific methods and failed results in their attempts to prove a causal link in subsequent Chapters, but they seem to feel they must lead with the fear factor here. It tries to say that the impacts of any increase in health risk to this community are so great, that it does not matter if Project Opponents cannot prove any causal link to projected direct health outcomes by isolating the "coal" element in trains, and that such a failure in proof would not really matter as the magnitude of the impact and the nature and character of the target population are such that any possibility of risk should not be allowed. This is the worst reasoning in social and scientific study. It ignores so many extraneous elements that flaw the "assessment" and asks the reader to forgive the flaws and abject failure of the scientific parts of the review, put reason aside, and just go with the ban. This entire Chapter could be easily applied to any incremental diesel train transporting any product, or any new bus line, or new ship service or new diesel-powered car purchased to be used in the City of Oakland, in any close proximity to West Oakland. That is the sum total of the value of this Chapter. It may be an important subject but it is not relevant in the absence of hard causal links.

- The Project Opponents throw a bone to the "faith community" that has been very supportive of the efforts of the Project Proponents to bring jobs to Oakland, with a gratuitous insertion of some of their positive activities. This type of verbiage supports the argumentative nature of the "assessment," but is excused by the authors as being within a "holistic" approach to the topic.
- The conclusion in this Chapter is that "any increased exposures .... will likely have an adverse health impact...." No link is made that there will be increased exposures, no comparison is made to either specific products or transportation modes. No mention is made of or comparison to other sources of pollutants or natural creators of particulates. This leaves the reader nowhere in terms of understanding if coal dust could ever possibly contribute enough particulates in Oakland to even stack up to the top fifty or one hundred existing contributors, such wood burning stoves, pollens, dust from Alameda Air Station, dust from the unfinished OAB site, sea air, etc.
- The second conclusion of this chapter is that if a link can be found that proves that coal dust could be a meaningful contributor to existing harmful air particulates, and if the outcome is adverse to health, that it is "possible" that such effects would be of "greater severity" for residents of West Oakland. Stringing together so many uncertain statements should give no one confidence in the dire outcomes being forecast by project opponents.
- The compounding of all of the strings of "likely" and "possible" outcomes are contrary to and fly directly in the face of the extensive body of definitive and conclusive study and regulations by the EPA, who has jurisdiction over the issue.

o Chapter 2: Coal and Diesel-Related Particulate Matter
  - This is a Chapter that attempts to prove a causal link to coal. It fails completely.
  - It begins by again combining emissions of coal dust with those of the diesel from the transporting train engine. There is no way to differentiate a coal train from any other train without making this separation whichch the Project Opponents fail to do. Though there are many other points in following Chapters where the "Assessment" fails, it fails entirely at this point.
  - Even when combined with diesel, no figures or percentages are given to contrast the possible contribution of particulates to those of the extant air. No real scientist would attempt to pass along this fiction. Ships, cars, chimneys, industrial emissions, dirt, and pollen all contribute. We get zero contrast or comparison. Rather than sink entirely here, the Project Opponents try to swim on the, 'there must be at least some" argument. They don't even attempt an estimate, which means they all know it's so small that as to be unquantifiable and/or insignificant.
  - Here the Project Opponents make their attempts at "original calculations" as they claim in the summary. The first of these supposedly new calculations take BNSF's controversial and unsubstantiated claims on Powder River Basin (PRB) coal, made by BNSF themselves to prepare for a lawsuit against various coal producers for the wear and tear BNSF claims they caused to rail track, ties and ballast by the leakage of rough coal particles from the underside of coal trains.

BNSF now requires PRB coal to be top-sprayed in some cases for the same reason. **Neither of the claims or arguments was made in the context of air quality.** But setting that aside, the Project Opponents use these unproven claims as assumptions and ignore the physics of the process altogether. They make no study, nor do they do any real measurements. They simply take a number from BNSF and extrapolate several generations to their preferred conclusion. Many physical factors must be considered and included in any such analysis:

- Type of coal – the characteristics of the subject coal will have an impact, and it is up to the Panel to prove the degree that such characteristics will have an impact. Utah coal is bituminous, contrary to what was stated on page 41. Though the paper is imprecise in that section, purporting that Utah coal is sub-bituminous, it is clear that in these calculations, they use questionable assumptions made on statements from BNSF about Wyoming's PRB coal, which they themselves say is softer and creates more dust. Again, any calculations fail on this shoddy scientific application. Bituminous coal is much harder that PRB coal. It would be reasonable to say that PRB coal produces twice as much dust as Utah coal. But then, the Project Opponents have done no studies to that effect.
- Speed of the train – they use an extreme speed here supplied from a maximum speed estimate by CCIG, of 30 MPH, as if that is an average over the subject section of track. Thirty (30) mph would be a maximum speed and anyone who has ever witnessed a train transiting Oakland streets knows that the average train is almost always at a dead stop. Even using a maximum acceleration of a fully-loaded unit train of coal of 2 FPSPS, getting a coal train up to 30 MPH from a dead stop would require 22 minutes, taking the train almost to Richmond. More likely, the average transit of a train would be a series of starts and stops, for safety reasons, and the average actual speed would be less than 10 mph. Even if there were no reason to stop, the train has to stop to unload at the terminal. The OAB is a terminus for these trains, not a stop along a long series of many stops. Trains come in and stop and begin from there and leave. There are no top-speed movements through Oakland. The trains start at 0 mph at the terminal and accelerate up to 30 mph by the time they leave the City, and coming into the City in the reverse direction, the trains must begin their deceleration at roughly the same point as they cross into the City limits. Neither of these worst-case (highest speed) movements contemplates the train speeding along through the countryside at 30 mph, anywhere within the City limits. In either of these cases, the average speed within the City would be less than 10 mph. As mentioned above, there are all kinds of impediments to free and safe movement in the City limits and the standard train movement will consist of starts and stops until it clears the City of Oakland. Since the fully-loaded unit trains entering and passing through the subject area of West Oakland are less than 6,000 feet from their ultimate point of rest, in the

OAB rail yard, the average speed with respect to the subject area of West Oakland **would be less than 5 miles per hour**. It is inconceivable that the Panelists would satisfy themselves with such an impossible and imprecise assumption of 30 mph, even though the project proponent may have listed that as a maximum possible speed somewhere in the City limits of Oakland at some single point in time.

- Wind speed – the Project Opponents claim 10 mph. Where the sample was taken was not mentioned. It could have been at the waterfront, exposed to direct air currents off the water, or on the top of a prominent building. Had it been taken at street level between buildings and trees, as through Emeryville, the average wind speed could have been much less. Where such a wind measurement was taken is important as the results could vary substantially, but then no backup data is given. In 2009, CA Air Resources Board did a wind rose graph to show average wind speed and direction at the Port of Oakland test station, the wind speed averages between 5.7 and 8.8 mph from a direction just south of due west. A more reasonable wind speed assumption here then, would be around 7 mph. **At 7 mph it is really questionable if any dust could be blown off a "seasoned" rail car, after an 800 mile trip.**
- Wind Direction - the Project Opponents show that wind speed at 180 degrees to the train direction is a contributing factor and then go on to assume that the wind in West Oakland is always 180 degrees to the aspect of the train and they simply assume that wind speed is added to maximum speed. Such assumption is inaccurate, unmeasured, and the results remain unsubstantiated. The track is certainly not directly north-south as claimed and is really 45 degrees to the north east. This would reduce the effect in either direction. The effect of wind speed is only additive (as the "assessment" has claimed) when the wind speed goes 180 degrees across with the direction of the moving train. If the wind is behind the train at an angle, it would be proportionally less. In this case, as shown by the CAARB study, the wind would be head on to any loaded train entering the yard, reducing the effect substantially. A more reasonable (yet still generous) assumption would be that wind direction would reduce the blow off at that geographic location by 50%.
- Mix of small and large particles as particulates – no estimate or measurement is made.
- Mode of exit from the train car – no estimate is made of the proportion or mix of particulates leaving out the bottom of the train car onto the gravel track bed versus the top of the cars.
    - If the Project Opponents go on to say that particulates leaving the bottom of the cars are a source for airborne pollutants, then they would need to measure how they think this might happen as well as the mix of particle sizes found exiting the cars at the bottom, wind speeds necessary to take such particles into the air,

the effects of rain and snow on the non-airborne particles over time, etc. No such work has been done or is proposed. It is conceivable that 90% of the leakage is from the bottom of the coal car in larger pieces, but if one were to be extremely generous and say that 80% of the leakage goes from the top as dust, a 20% bottom amount must be discounted.

- The Project Opponents have assumed an equal rate of leakage along the line when reason alone tells one that newly loaded coal traveling at high speeds will have more breakage and emit more dust from the top and the bottom of uncovered rail cars. No measurement is proposed for this split. While it is more likely that the dust coming off a train at the end of an 800-mile run would be less than 5% of the average amount, a generous estimate of 20% could be made for calculation purposes.
- The Project Opponents have used BNSF's data for leakage, quoting 500 pounds per railcar, and then magically, without a reference they allude to other studies quoting amounts as a high as 3% of the weight of the coal can be lost. This inflates the amount to 12 times the amount quoted by BNSF. The STB study in 2009 quoted 645 pounds could be lost from coal taken from PRB to Washington State. If we use that generous maximum of 645 pounds, and not the pure fabrication used in the assessment of 3.0%, the true percentage is .32%.
- The Project Opponents use 10 mmt when TLS has s stated that no more than 4.5 mmt of coal will be transported.

- The Project Opponents combine their wild and extreme assumptions to produce a sensational 618 tons of coal dust that would be dumped on West Oakland each year. As tortured as the Opponents' assumptions and calculations are, if one were to take their methodology and apply more reasonable assumptions, the variance is so great as to be criminal. Let us take the 645 pounds per car stated by the STB, let us also say that leakage rate at the end of the trip are 20% of those at the beginning of the trip. Let us also factor in the hardness of Utah coal as opposed to the PRB coal, discounting the emissions another 50%. Let us also discount out 20% of the leakage that leaves from the bottom of the cars. Let us also add that the northern route that Project Opponents want to use as the primary approach track only passes .9 miles of West Oakland until it goes under the W Grand overpasses and enters the OAB (instead of the 1.9 miles claimed by Project Opponents). Using their same calculation and the STB's estimate for PRB coal, the amount of tons of coal dust in West Oakland could be (4.5 mm tons times the STB's .32% dust factor, times a 50% hardness factor, times a 20% leakage rate, times an 80% top/bottom leakage mix, times [.9 miles/800 miles] = 1.29 tons. **One and a quarter tons, not 618.8 tons. Project Opponents are off by a conservative factor of 477 times. Even if TLS were doing the full 9 mmt capacity of the facility with coal, it would amount to 2.5 tons, still off by a factor of 238 times.**

- The biggest error in the "assessment" is still the fact that they choose to ignore the complete containment system that TLS has stipulated with rail cars that will be completely covered. No one needs to make a single additional calculation. This unnecessary accommodation answers all questions.

- On page 17, they again use an unsubstantiated maximum number as they try to separate out the amount of coal particulates that could occur in the ambient air, using DusTrak sampling equipment. They quote an average higher increment of 10 µg/m3as tested by someone in the Columbia River Gorge and then they miraculously highlight an unsubstantiated spike of 230 µg/m3. They go on further to assume a 180 degree direction to the wind, and combine wind speed of 10 mph and train speed of 30 mph to achieve an estimated increment due to coal dust at .25 µg/m3, stating that such an increment would put Oakland close to State and Local maximums (but not over) and over WHO standards. If one were to take the data corrections on wind speed and direction and train speed as noted in the sections above, and extrapolate a correct result, using a new train speed of 5 mph, a new wind speed of a generous 7 mph, and discount the result 50% for wind directly to the oncoming trains, the result is .0375 µg/m3, which is an insignificant incremental result. Not even WHO standards are breeched by such an insignificant amount. Again, **Project Opponents are off by a factor of 6.7 times**. The Project Opponents' capacity to overreach and overstate in a supposedly scientific paper is truly astounding.
- The rest of the Chapter deals with the Health ramifications if the causal link could be reasonably and\or reliably proven, which has already been shown here to fail. A couple of sections on page 20 deal with Diesel emissions, which are not part of this proof on coal trains. Were they to be all other diesel trains must be banned as well, and the Opponents have stated that they are fine with all other diesel trains.
- Lippsett and Balmes are quoted on page 21 combining diesel and coal dust, again with no measurements or supporting studies to break down and isolate the two components., which means that no one in this "assessment" has evidence as to what quantities, if any, are in the ambient air of a passing train. It's all supposition. Later in the piece, Dan Jaffe is quoted in Chapter 6 – Page 36 as saying that "doing the calibration they suggest would be a complex and costly experiment. To my knowledge, no one has ever done this." Jaffe confirms that no one has a clue what the breakdown between particulate emissions from coal dust, if any and normal particulates of diesel emissions might be, based on direct studies of the actual train emissions themselves. The whole "assessment" is premised on and fails on this basis. There is no way to differentiate a diesel train carrying hay cubes, wheat, gravel, containers, coal or any other items. To be consistent with their own "findings," the Project Opponents would have to ask the City Council to ban all diesel trains of any kind.
- The Chapter conclusion reverts to hyperbolae. Phrases like, "body of evidence surrounding particulate matter is so vast" add emotion to the paper but the lack of evidence or causal link cannot be overcome by emotion. All the evidence on particulates in the world cannot overcome the fact that they have no idea how to break apart the diesel-generated particulates from the supposed coal dust. **Any "findings" made in this document are complete fabrications, off by factors of 477 times and 6.7 times.**

- Chapter 3: Assessment of Mitigations for Fugitive Coal Dust
  - The Project Opponents have known from the beginning of this effort that the EPA, as the federal agency with jurisdiction over the transport and handling of coal in storage and ship-loading terminals does not require the product to be enclosed or covered in any phase of the process. Project sponsors, TLS and CCIG, have agreed to cover all phases of transport and handling, out of an abundance of caution and as an additional and superfluous accommodation to Project Opponents and Citizens of Oakland.
  - Nothing need really be said about the effects and efficiency of "complete containment." It speaks for itself. The Project Opponents have chosen, in the face of such an argument-ending offer, to classify "complete containment" as experimental and unproven. It is an astounding claim to ignore reality. They go on to postulate the downside of this over-the-top accommodation to Oakland, by adding a discussion of fear of explosion, fire and worker health and safety. Each of these elements is well-covered by the federal jurisdictional agency for such, OSHA, and again, such a system is covered in their regulations as they have developed them in other similar applications. They will be the monitoring agency for such regulations.
  - The Project Opponents spend a great deal of time denigrating surfactants when no such treatments are planned.
  - The Project Opponents talk about the exorbitant cost of such covers and containment systems. If that is the case, and the terminal cannot be built as they purport, by result of feasibility, then they have no need to fear that the coal portion of the terminal will be built.
  - The exceptionally miniscule risks of fire and explosion are taken so far beyond probability by the "assessment" as to again cast it into the camp of emotional hyperbolae. No proofs, no significance, no impacts, no basis to raise the arguments other than trying to promote some irrational fear.
  - They Project Opponents state that the City has the legal authority to ban coal train transits, as a health hazard, which it clearly does not.
  - Project Opponents argue that covers for coal do not address the diesel emission component. It is an amazing lack of continuity in argument and reasoning to say that they have no problem with any other diesel powered trains coming to Oakland, but they just object to the health impacts of coal, and then they say that if the cars are covered and if that eliminates the coal dust issue, it does not address the diesel.
- Chapter 4: Hazardous Toxics Accompanying Coal Dust – Chapter 4 is nothing more than a lesson on the generic chemical components of coal. No specific data for Utah coal is included. No arguments are made other than there might be some bad stuff in it. The section is useless.
- Chapter 5: Local impacts of international combustion of coal: trans-pacific travel of air pollution – chapter 5 is completely based on the soft-science of effects in Oakland based on the incremental burning of coal in Asia.

- It is completely based on the notion that the subject coal will be shipped to Asia. The vast majority of the export destinations for this coal has and will be Mexico and South America.
- Utah coal is far cleaner burning coal than other coals that would be burned were it not for the export availability of this coal. This is of no consolation to the "no coal" Project Opponents, but it is a fact. The world (and City of Oakland residents) will be better off burning Utah coal than other coals.

- Chapter 6: Responses to Developer Comments Concerning Coal Dust
  - The proponents statements being debated and answered here stand for themselves and the answers do nothing to detract. Several incorrect statements are made in the Project Opponents' answers, such as the fact that Utah has sub-bituminous coal. Most of the answers are argumentative only, such as postulating that there are much better commodities to handle at the terminal.
- Chapter 7: Health and Safety Hazards at the Port – OSHA has already regulated these items with respect to similar facilities and will be monitoring the compliance. Most of the section introduces explosions and toxicity in ways that are meant to raise fears, but without any measurements, cases, real studies, historic outcomes, risk percentages, etc. It devolves into a general questioning of terminal design, which is really out of the scope of this "assessment."
  - It ends with the whopper of an argument that in the event of earthquake, things could be really bad. Should such an earthquake occur, the Bay Area has far more serious things to think about than the effects on a bulk terminal at OAB.
- Chapter 8: Climate Change and Health and Oakland – All of chapter 8 is a rehash of the hackneyed and immaterial arguments for global climate change. None of this is specific to the question at hand, as to the possible advent of coal dust on this stretch of track and the health effects of that in Oakland.
- Chapter 9: Noise Effects of Coal Transport and Handling in Oakland – Noise has nothing to do with the question as to the possible advent of coal dust and the health effects of that in Oakland. Any noise associated with the terminal would be the same regardless of bulk material carried and the Project Opponents have already approved every other bulk product to be handled through the terminal. They should try to address the incremental noise over that baseline, but they did not. It's simply a 14 page exercise on complaining about something that happens with all bulk commodities and they have already passed on those.

The rest of the pages are appendices and citations.

theguardian

California's coal war pits economic survival against environmental justice

Proposed terminal to export coal to Asia creates tense showdown in port city as key players cite potential health risks, yet industry could provide needed jobs

Maria L La Ganga in Oakland

Thursday 21 April 2016 08.00 EDT

Margaret Gordon will not get out of the car. She is in the shadow of the San Francisco-Oakland Bay bridge on a triangle of land where a bustling maritime terminal is planned.

"The pollution is too bad," the 70-something activist declares, and the terminal isn't even built yet. She rummages through her purse for an inhaler. "I got a sore throat. I have allergy attacks ... See the crane operating over there? All that's going to be OBOT."

Formally known as the Oakland Bulk and Oversized Terminal, OBOT will be able to handle up to 15,000 different commodities when it opens in early 2019 on the site of a decommissioned army base. But only one of them - coal - is forcing a tense showdown from Oakland city hall to the California capitol, a fight with echoes along the west coast and implications around the globe.

Environmentalists refer to California, Oregon and Washington state as "the thin green line", a barrier they hope will prevent coal from being exported to more polluting countries in Asia.

At stake in the Oakland fight are, on the one hand, the city's green reputation, California's standing as an international climate leader and the west coast's very sense of itself. And on the other? The survival of a struggling industry and much-needed local jobs that pay a living wage.

"The west coast doesn't see itself as suppliers of coal and oil and gas to the world," said Eric de Place, policy director at Sightline Institute, a Seattle-based sustainability thinktank. "We see ourselves as innovators and environmental leaders. There's a visceral, almost existential rejection of the idea that we will be a superhighway for coal and oil."

Oakland is one of seven marine terminals that US coal producers would like to use to transport their wares to Asia. The proposals - four in Oregon, two in Washington state and one in California - cropped up after the domestic market for coal plummeted about five years ago.

Benchmark Australian coal prices have dropped from $132 per ton to $52 since January 2011. Fifty coal companies have filed for Chapter 11 bankruptcy protection since 2012, including the two largest in the US. Arch Coal filed in January, followed by Peabody Energy earlier this month.

Coal producers decry a "war on coal" beyond the economic drubbing. To some extent they are right. The Sierra Club and other environmental groups have launched anti-coal campaigns, drumming up local support to shut the terminal proposals down.

Legislatures from Canada to Mexico have enacted new regulations to move their energy supplies away from coal. In October, Governor Jerry Brown of California signed Senate Bill 185, requiring the California Public Employees' Retirement System and the California State Teachers' Retirement System to sell their holdings in coal-producing companies.

At the moment, the Oakland battle is the most heated of the west coast terminal fights. The four Oregon proposals are off the table for a variety of reasons, De Place said. On 29 April, the clash will intensify over a terminal in Longview, Washington, when a draft environmental impact statement is released.

Betsy Monseu, chief executive of the American Coal Council, said her industry is deeply concerned about "a piling on of regulations that won't have any benefit and will have an extreme level of implications - for the economy, for electricity prices, for American families". She declined to comment on any west coast terminal fight, but said that, if necessary, there are ways to move coal other than through Washington, Oregon and California. If "the price levels supported it, then those coals would move", she said.

In some ways, the fight over Oakland's marine terminal is intensely local, a kind of he-said-she-said fight between city government and the terminal's creators with little agreement on even fundamental matters, such as whether coal will even be processed in Oakland and whether it's really bad for health.

But even the most local aspects of the proposed terminal have larger implications, pitting economic survival against environmental justice, living-wage jobs against children's lungs in west Oakland, among the Bay Area's most downtrodden neighborhoods. No matter who wins, someone will lose.

West Oakland is ringed by freeways and located hard by the busy Port of Oakland, where hundreds of diesel trucks drive in and out all day. Nearly half of its population is African American; 85% are people of color. For the last half-century, at least a fifth of the population has lived in poverty.

The neighborhood is sicker and poorer than nearly any other in Oakland. Its residents on average live 12.4 years less than their wealthier counterparts in the Oakland Hills, according to a 2015 report by the Alameda County public health department. There is more asthma, more lung cancer, more stroke and more congestive heart failure.

Jerry Bridges is president of Terminal Logistics Solutions, the Oakland-based company that will operate the proposed marine bulk commodity terminal. During a recent interview, he flashed drawings of the facility on to the TLS conference room wall and sang its technological praises.

Even if coal is handled there - a big if because of the ailing market, it will not hurt the neighborhood, he said.

"All of the commodities coming through the terminal will be in covered rail cars, dumped into enclosed underground units with dust control," Bridges said. "Bottom line is the products will never see the light of day."

And then there is what Phil Tagami, developer of the terminal, calls the community benefit.

"This project's about taking a former military base as a peace dividend and transforming it into a facility that will not only deliver much-needed jobs to Oakland that are good-paying jobs, but it was also about restoring a working waterfront."

Five of Oakland's eight city council members did not respond to requests for comment. The three who would discuss the project were uniformly opposed.

"Coal has no place in Oakland, whether it's transported, stored or shipped to China," said councilman Noel Gallo. "Poor communities pay the brunt when it comes to health and safety issues. I don't see them running the railroad through rich neighborhoods. They put it through poor black and brown neighborhoods."

If the terminal goes forward as planned it would become the largest coal exporter on the west coast, unless one of the Washington proposals comes on line.

At this point, said Jessica Yarnall Loarie, a Sierra Club attorney involved in the anti-coal campaign, Oakland's proposed terminal is closest to becoming a reality of anything planned along the thing green line.

"It could ship 10m tons of coal annually, which, when burned, is the equivalent of seven average-sized power plants in a state that does not burn coal," Yarnall Loarie said. "California's climate leadership is on the line with this project."

Want stories like this in your inbox? ×

Sign up to the Guardian US briefing to get the top stories in your inbox every weekday.

More news

Topics

California Coal Activism Oregon Washington state More...

Save for later Article saved
Reuse this content
View comments

SIERRACLUB.ORG

OAKLAND COAL EXPORTS

A private developer wants to use public land and taxpayer dollars to export dirty coal through Oakland. Not only would this hurt our global climate, it would damage the health of local communities that already face dangerous levels of air pollution.

HOW DID WE GET HERE?

A portion of the former Oakland Army Base is being developed as a bulk export facility, known as the Oakland Bulk and Oversized Terminal (OBOT). CCIG, the developer, went behind the backs of the Oakland City Council to solicit a partnership with four Utah counties that could allow Utah to export up to 10 million tons of coal from their mines each year. A Utah funding body approved $53 million to buy space at Oakland Bulk Terminal for these coal exports. When developer Phil Tagami was negotiating with the City of Oakland to lease the land at the Army Base, he promised concerned residents that the facility would be coal free. Unfortunately he broke that promise—to get access to the $53 million offered by Utah. The Army Base project is also supported by $242 million in Proposition 1B Trade Corridor Improvement Funds, California taxpayer dollars intended to improve state air quality.

COAL: A DANGER TO PUBLIC HEALTH

Exporting dirty coal through Oakland would not only hurt our global climate, it would endanger the health and safety of local communities. West Oakland, where the coal would be handled, is already struggling with the severe air pollution. West Oakland residents are twice as likely to go to the emergency room with asthma as people in Alameda County overall.[1] Each coal train can shed an average of 60,000 pounds of coal dust containing lead and arsenic along its route, and that dust contributes to health problems like asthma and heart disease.

Tests show that coal dust contains arsenic, lead, mercury, chromium, nickel, selenium, and other toxic heavy metals.[2] Exposure to coal dust is linked to decreased lung capacity, increased childhood bronchitis, asthma, pneumonia,[3] emphysema and heart disease.[4] In a community near a large coal terminal in Virginia, the number of residents suffering from asthma was found to be more than twice the city and state average.[5] Areas with high levels of coal dust pollution have increased infant mortality rates and decreased life expectancies.[6]

Children are at the greatest health risk from air pollution created by coal dust because they are more likely to be active outdoors and their lungs are still developing. Asthma is a leading cause of missed school days.[7] On "bad-air days", kids with asthma are forced to stay indoors for risk of aggravating their conditions.

UNDERMINING CALIFORNIA'S CLIMATE LEADERSHIP

The proposed 10 million tons of coal shipped annually through OBOT will contribute approximately 30 million tons of CO_2 each year to climate change. That's equivalent to the annual carbon emissions of seven average power plants.[8] All across the U.S. communities are fighting to transition away from coal burning at their local power plants. Just this single coal export terminal would cancel out the efforts of seven of those communities.

California is an international leader on climate change. We have made more progress on reducing carbon emissions than any other state in the U.S. If we allow this coal to pass

through Oakland, we will undermine all the work that has been done, all to profit private developers CCIG, TLS and Bowie Resources Partners, an out-of-state coal company.

As people in the U.S. learn about the health impacts of coal burning, coal-fired power plants have become less and less popular, so domestic coal companies are turning to overseas markets to unload their coal. Local communities along the West Coast have worked hard to stop coal export facilities one by one, creating a "thin green line." Oakland should join in solidarity with those communities to keep polluters from sacrificing our global climate for a profit.

WHAT CAN WE DO?

This project is taking place on public, city-owned land. The Oakland City Council has the authority to ban coal exports if they have evidence that coal exports are "substantially dangerous to health and safety" for neighboring communities. Those health and safety impacts have been well documented by experts and submitted to the Council. Now the Council needs to stand up to project developer Phil Tagami and say NO to coal exports.

Fortunately, we don't have to choose between the good jobs created by the terminal overall and the health of our community. The original proposal for the terminal did not include coal—it proposed to ship agricultural products and bulk break items like wind turbines. Of the 2,335 permanent jobs estimated to be produced by the project, only 117 are associated with the Oakland Bulk Terminal.[9] If the terminal were to ship other commodities, as was originally proposed, the same number of jobs would be created according to the economic impact review prepared for the City in 2012.[10] By saying no to coal, we can create good jobs while protecting our air quality and public health at the same time.

Join labor unions, environmental activists, faith leaders and local businesses in saying NO to coal in Oakland. Visit sierraclub.org/sfbay/coalfreeoakland to learn more, and call your representative on the Oakland City Council today and ask them to stop coal exports.

DISTRICT	NAME	CONTACT
1	Dan Kalb	dkalb@oaklandnet.com 510-238-7001
2	Abel Guillen	aguillen@oaklandnet.com 510-238-7002
3	Lynette Gibson-McElhaney	lmcelhaney@oaklandnet.com 510-238-7003
4	Annie Campbell-Washington	acampbell-washington@oaklandnet.com 510-238-7004
5	Noel Gallo	ngallo@oaklandnet.com 510-238-6005
6	Desley Brooks	dbrooks@oaklandnet.com 510-238-7006
7	Larry E. Reid	lreid@oaklandnet.com 510-238-7007
At-large	Rebecca Kaplan	rkaplan@oaklandnet.com 510-238-7008
Mayor	Libby Schaaf	officeofthemayor@oaklandnet.com 510-238-3141

ENDNOTES

1 Rubenstein, Grace. "Air Pollution Controversy Swirls Around Oakland Army Base Development | News Fix | KQED News." KQED News. May 6, 2014. http://ww2.kqed.org/news/air-pollution-dispute-west-oakland-army-base.

2 Aneja, Viney P., Aaron Isherwood, and Peter Morgan. "Characterization of Particulate Matter (PM10) Related to Surface Coal Mining Operations in Appalachia." Atmospheric Environment 54 (2012): 496-501.

3 Brook, Robert, et al, "Particulate Matter Air Pollution and Cardiovascular Disease. An Update to the Scientific Statement From the American Heart Association." May 9, 2010. Accessed February 10, 2016. http://circ.ahajournals.org/content/early/2010/05/10/CIR.0b013e3181dbece1.

4 Landen, Deborah D., James T. Wassell, Linda Mcwilliams, and Ami Patel, et al. "Coal Dust Exposure and Mortality from Ischemic Heart Disease among a Cohort of U.S. Coal Miners." Am. J. Ind. Med. American Journal of Industrial Medicine 54, no. 10 (2011): 727-33.

5 Peninsula Health District, Virginia Department of Health, "Health Needs Assessment of the Southeast Community City of Newport News 2005".

6 Brook, Robert, et al, "Particulate Matter Air Pollution".

7 American Lung Association, Epidemiology and Statistics Unit, Research and Program Services. "Trends in Asthma Morbidity and Mortality," January 2009.

8 Technical Memorandum Air Quality, Climate Change, And Environmental Justice Issues From Oakland Trade And Global Logistics Center. Sustainable Systems Research, LLC, 2015.

9 Memorandum: Property Tax And Economic Impacts - Oakland Army Base. San Francisco: Keyser Marston Associates, 2012.

10 de Place, Eric, Sightline Instititute, "An Alternative to Coal Jobs," 2011, http://www.sightline.org/2011/09/14/an-alternative-to-coal/

Sierra Club SF Bay Chapter
2530 San Pablo Avenue, Suite I
Berkeley, CA 94702
(510) 848-0800

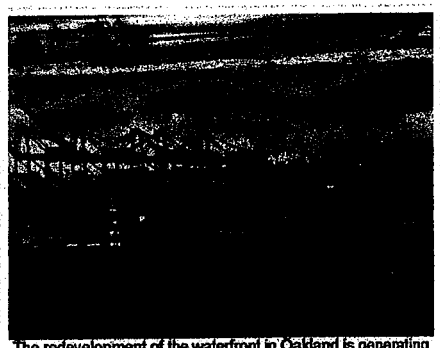
sierraclub.org/sfbay
twitter.com/SFBaySierraClub
facebook.com/SierraClubSFBayChapter

SIERRA CLUB

Search Results for: oakland coal

Community groups dismiss Oakland coal exports case while working with City to exclude coal from project

December 1, 2015 Leave a Comment



The redevelopment of the waterfront in Oakland is generating new controversy over a proposed coal export terminal.

On November 25th, Earthjustice, representing Communities for a Better Environment, the Sierra Club, San Francisco Baykeeper and the Asian Pacific Environmental Network, dismissed its case in Alameda County Superior Court against the City of Oakland and a group of developers led by Prologis CCIG Oakland Global LLC, challenging the City's failure to conduct environmental review for the developers' proposal to build California's largest coal export terminal on the Oakland waterfront.

This dismissal comes after the City disclosed new information during the litigation process about its role in the terminal development and its expected process for evaluating and approving construction on the proposed terminal. The dismissal is without prejudice, preserves the groups' right to re-file at a later date.

As the City continues its review of the health and safety effects of the proposed coal export terminal, and exercises its oversight over the proposed coal terminal, these community client groups will continue advocacy work to fight the unchecked development of a coal export terminal on the Oakland waterfront. Based on statements made by the City in the litigation, the groups wish to allow the City to proceed with its decision making in good-faith while keeping open the possibility for future legal action should it become necessary.

Statement from Earthjustice Attorney Irene Gutierrez, attorney for petitioners: "We sued to protect the rights of Oakland residents to access information, detailing how developing California's largest coal terminal on the Oakland waterfront would affect their health and environment. We believe it is in the best interest of our community client groups to continue advocacy efforts and work in good-faith with city staff to achieve a mutually acceptable solution. We remain vigilant in supporting this community's efforts to safeguard itself from dirty coal and trust that the City of Oakland's leaders will exercise oversight over the proposed development, including whether coal is or is not part of the project."

In papers filed by the City of Oakland during the litigation, its lawyers stated that:

> Developer Prologis CCIG Oakland Global had pursued project funding from the Utah counties "without City support, knowledge or involvement." (City of Oakland Demurrer at p. 2)(emphasis in original.)
>
> "[T]he City has not taken an official position on whether Real Parties' project approvals entitle them to transport coal." (City of Oakland Demurrer at p. 3.)
>
> "The City is evaluating discretionary decisions it may take in the future with respect to Real Parties' project (e.g., additional permit requirements), or which will apply to Real Parties' project (e.g. new legislation that would apply to the project), and the scope of additional environmental review, if any, that it may require in connection with any such decision(s), consistent with its existing contractual obligations." (City of Oakland Demurrer at p. 9, fn8.)

STAY INVOLVED WITH THE SIERRA CLUB, LOCALLY

San Francisco Bay Chapter Sierra Club
Sierra Club California
Sierra Club
Activities Calendar
JOIN online for $15 and a free backpack!
DONATE to your local chapter, the SF Bay Chapter
Volunteer

SIERRA CLUB FOUNDED 1892
Volunteer, donate, join, or renew your membership in the Club!

MOST RECENT POSTS

Air District commits to studying refinery pollution caps
2016 David Brower Dinner to honor intrepid visionaries who embody values of National Park Service
Ranger and park advocate Mia Monroe to receive Edward Bennett Lifetime Achievement Award at 2016 David Brower Dinner
Betty Reid Soskin, oldest active national park ranger, to receive Trailblazer Award at 2016 David Brower Dinner
Celebrate national historic designation for the John Muir Memorial Hut
On June 27th, Oakland could close the door on coal
Meeting on High Sierra forest plans on June 29th in SF
Volunteer signature-gatherers needed for initiative to protect Richmond hills

These statements provided Petitioners with new information about the City's role to date with the coal export terminal, and its expectations for further oversight of the project. The City is currently assessing the health and safety concerns generated by the proposed coal export terminal, with further action expected by February 2016.

Background: After years of assurances that coal would not be transported through a bulk terminal on the former Oakland Army Base, in April 2015, community members learned that the project developers had cut a secret funding deal with four Utah counties that would bring coal into Oakland. In exchange for $53 million in project funding, the developers promised the Utah counties shipping rights to at least 49 percent of the bulk terminal's 9–10 million ton annual shipping capacity, which would make the terminal California's largest coal export terminal. On October 2, 2015, community groups sued the City and developers for the City's failure to conduct the environmental review of the proposed coal terminal required by the California Environmental Quality Act.

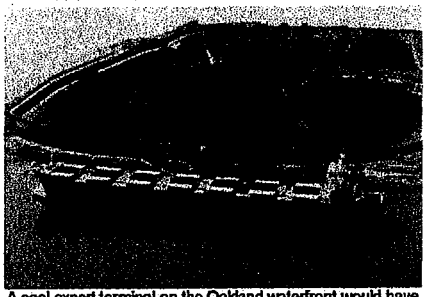
Article adapted from post by Earthjustice. Read more about this issue at our website.

Recommend Share Sign Up to see what your friends recommend.

Filed Under: Clean Energy and Climate

Community and environmental groups challenge proposed Oakland coal-export terminal—California law requires environmental review of coal impacts

October 2, 2015 Leave a Comment



A coal-export terminal on the Oakland waterfront would have major health and safety impacts on the local community and would mean massive emissions of climate-destabilizing greenhouse gases.

Today, Earthjustice, on behalf of Communities for a Better Environment, Asian Pacific Environmental Network, the Sierra Club, and San Francisco Baykeeper, filed a California Environmental Quality Act (CEQA) action in Alameda County Superior Court to challenge the proposal to export Utah coal out of Oakland's proposed bulk terminal at the former Oakland Army Base. The project, known as the Oakland Bulk and Oversized Terminal, is being built by a group of developers led by Prologis CCIG Oakland Global LLC. Contrary to the fundamental requirements of CEQA, the environmental review for the project failed to include any discussion or analysis of the impacts of transporting, handling, or exporting coal from Oakland on surrounding neighborhoods or the environment. This is particularly problematic given the project's disproportionate impact on Oakland's most vulnerable communities of color.

After years of assurances that coal would not be transported through the bulk terminal, in April 2015, community members learned that the developers had secretly cut a funding deal with four Utah counties that would bring coal into Oakland. In exchange for $53 million in project funding, the developers promised the Utah counties shipping rights to at least 49% of the bulk terminal's 9-10-million-ton annual shipping capacity. Utah officials have stated that they intend to use this capacity to export coal to overseas markets. This development followed a number of public statements by CCIG's President and CEO, Phil Tagami, that the company had "no interest or involvement in the pursuit of coal-related operations at the former Oakland Army Base."

"We have been working for many years to combat the environmental harms that our neighborhoods were subjected to through neglectful and discriminatory policies that disproportionately affected our community," said West Oakland resident Karin Mac Donald. "Our vision for the future is a safe and healthy environment and dirty coal is certainly not part of that. Phil Tegami needs to follow the law, stick to his promises, and listen to the community that would be impacted by coal shipments."

The Oakland City Council held a hearing on September 21st, 2015, to gather evidence on the health and safety issues associated with the proposed coal export facility. At the end of the six-hour hearing, the Council adopted a resolution to review the information and consider potential action before December 8th, 2015.

"Shipping coal through the bulk terminal would be devastating to the health of the West Oakland community and many other communities along the rail line," said Irene Gutierrez, attorney at Earthjustice. "The California Environmental Quality Act was meant to protect the public from being kept

JUNE 2016 – FEATURED EVENTS AND ACTIVITIES

On June 27th, Oakland could close the door on coal

Volunteer at Sierra Club backcountry huts

More June 2016 Featured Events and Activities

OTHER LINKS

Meetup Group

Be the first of your friends to like this

in the dark about what this new coal project means for their health, safety and environment. We seek to hold the City to its duties to inform and protect the public."

"The proposal to ship coal out of Oakland would not only impact our air quality, but our water as well," George Torgun, Managing Attorney at San Francisco Baykeeper. "Coal dust released by open train cars will pollute our Bay, and the process of suppressing coal dust is itself highly water-intensive. As we head into our fourth straight year of drought conditions here in California, we can't afford to be wasting water on spraying down tons of dirty coal to minimize dangerous coal dust. For the sake of our water and the health of our communities, we must keep coal out of Oakland."

"Tons of coal dust every week all year round is a dangerous threat to the lungs and well-being of Oakland residents who are already disproportionately impacted by air pollution," said Michael Kaufman, a member of Communities for a Better Environment. "After working for decades to improve the air we won't stand for this assault."

"We support bringing jobs to Oakland through the Army Base Redevelopment project and the proposed bulk terminal, but not at the expense of the health of West Oakland communities and our global climate," said Jess Dervin-Ackerman, Conservation Manager with the Sierra Club's Bay Chapter. "We will continue to work closely with the Oakland City Council and Mayor Schaaf to encourage the project's backers to move forward with the plan as originally proposed, without dirty coal exports. This case will ensure that the environmental impacts of this project are fully considered."

"Coal has no place in the vision for a vibrant and thriving local economy that we all have for Oakland, especially for our most vulnerable residents," said Miya Yoshitani, Executive Director of the Asian Pacific Environmental Network. "We fully support the Army Base Redevelopment project and believe it is an opportunity to create jobs and stabilize our neighborhoods, and last century dirty coal exports keep us from realizing that important goal."

Communities for a Better Environment, Asian Pacific Environmental Network, Sierra Club, and San Francisco Baykeeper are represented by Irene Gutierrez and Stacey Geis at Earthjustice, and the Sierra Club is represented by Jessica Yarnall Loarie.

Recommend Share Sign Up to see what your friends recommend.

Filed Under: Clean Energy and Climate

Come to a health and safety hearing to block Oakland coal exports

September 2, 2015 Leave a Comment

It's been nearly five months since we first learned about a dirty backroom deal to export Utah coal through a terminal under development on the West Oakland waterfront. Since then, we've learned a lot about the plan. The coal would be transported on long, dusty trains from Utah, compromising air and water quality all along the route. From Oakland, the coal would be shipped abroad to be burned, adding to the global climate crisis. But now there's some good news: *we've learned how we can stop this dirty project.* Here's the plan:

Youth leaders from West Oakland at a rally against coal in Oakland.

On Monday, September 21st, the Oakland City Council will hold a hearing on the impacts of the coal-export project on public health and safety. If we can convince the City Council of the magnitude of the threat, they can keep coal out. We need a big turnout to tell City leaders why letting coal come through the Bay Area would be a disaster for the local economy, health and safety, and the climate.

This is our big chance to stop this dirty deal. RSVP today to join us!

WHAT: Stand up for a coal-free Oakland at the City Council's health and safety hearing
WHEN: Monday, September 21, 3:30 pm
WHERE: Oakland City Hall, 3rd floor Council Chambers
RSVP HERE

Many thousands of Bay Area residents have signed petitions, made phone calls, and attended rallies to express their outrage that a development project on public land using public dollars would be used to

prop up the dying coal industry. And our message is getting through! Now we need to put the final nail in the coffin by showing the City Council that the Bay Area wants nothing to do with coal.

We've come so far in our work to improve the Bay Area's air quality and combat climate disruption. Let's not let the dirtiest fossil fuel on the planet derail that progress.

So mark your calendar for September 21!

Recommend Share 24 people recommend this. Sign Up to see what your friends recommend.

Filed Under: 09/15 — September Activities

On June 27th, Oakland could close the door on coal

June 20, 2016 Leave a Comment

It's been nearly 15 months since we first learned about a backroom deal to turn Oakland into the West Coast's biggest coal exporter. Now, the nightmare could finally be coming to an end. On Monday, June 27th, the Oakland City Council will hold a special hearing to unveil an ordinance designed to block coal and petroleum coke (petcoke) exports through Oakland. We need to turn out in force to show the council that if they stand up to the special interests pushing this dirty deal, we will have their backs.

Youth leaders from West Oakland at a July, 2015 rally against coal exports.

Please join us on June 27th and help hold the council members to their promise to protect us all from coal exports. Here are the details:

WHAT: Oakland City Council hearing of an ordinance addressing coal exports
WHEN: Monday, June 27th, 4:30 pm (hearing begins at 5 pm)
WHERE: City Council Chambers, 3rd floor of City Hall, 1 Frank H. Ogawa Plaza, Oakland, CA 94612
RSVP Here!

We haven't seen the language of the ordinance yet, but we have reason to hope that it will effectively block the deal to ship up to 10 million tons of Utah coal annually through a new export terminal planned for the Oakland Army Base redevelopment — a taxpayer-funded project located on public land. The coal would travel to the Bay Area in mile-long open-top rail cars, spreading toxic coal dust through countless communities along the way. West Oakland residents, who already suffer disproportionately from bad air quality,[1] would be hit hardest by health impacts including asthma, pneumonia,[2] emphysema and heart disease.[3]

Please join us on the 27th and help ensure that Oakland's elected officials prioritize public health and safety above the profits of Utah's coal industry and private developers.

If we can stop this coal-export project, we'll be strengthening the "thin green line" being drawn down the West Coast by communities like ours. The goal is a continent-wide blockade of coal exports, and the stakes are no less than the future of our planet. If we can stop this proposal to export 10 million tons of coal to overseas markets each year, it will be the equivalent of wiping out the carbon emissions of seven average power plants.[4]

June 27th could be the day we close the door on coal for good — but we can't underestimate the persuasive power of the special interests who stand to benefit financially from the coal-export deal. They'll be sure to turn out in force, so we need you to show up, too. Please RSVP today to let us know we can count on you on the 27th.

[1] Rubenstein, Grace. "Air Pollution Controversy Swirls Around Oakland Army Base Development | News Fix | KQED News." KQED News. May 6, 2014. http://ww2.kqed.org/news/air-pollution-dispute-west-oakland-army-base.

[2] Brook, Robert, et al, "Particulate Matter Air Pollution and Cardiovascular Disease. An Update to the Scientific Statement From the American Heart Association." May 9, 2010. Accessed February 10, 2016. http://circ.ahajournals.org/content/early/2010/05/10/CIR.b013e3181dbece1.

[3] Landen, Deborah D., James T. Wassell, Linda Mcwilliams, and Ami Patel, et al. "Coal Dust Exposure and Mortality from Ischemic Heart Disease among a Cohort of U.S. Coal Miners." Am. J. Ind. Med. American Journal of Industrial Medicine 54, no. 10 (2011): 727-33

[4] Technical Memorandum Air Quality, Climate Change, And Environmental Justice Issues From Oakland Trade And Global Logistics Center. Sustainable Systems Research, LLC, 2015.

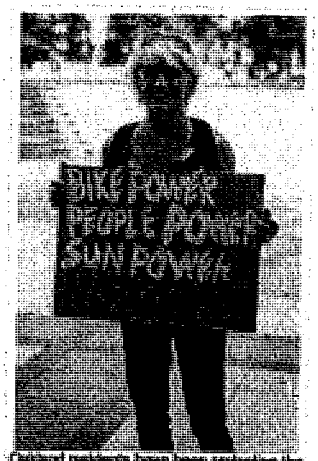
Recommend Share 48 people recommend this. Sign Up to see what your friends recommend.

Filed Under: 06/16 Activities—June 2016, Clean Energy and Climate

Oakland City Council moves forward with process to ban coal exports — Critical hearing on June 27

May 18, 2016 Leave a Comment

Early in May, the Oakland City Council took an important step toward banning coal exports from the redeveloped Oakland Army Base. The Council voted unanimously to approve a contract with consulting firm ESA to prepare a report on the health and safety impacts of coal exports. Signing a contract now means that it is still possible to get a final decision on this matter before the Council's upcoming summer recess.



Oakland residents have been protesting the coal-export proposal for over a year. Here, Kelly Pelavy of No Coal in Oakland carries the message to Oakland City Hall last July. Photo by Brooke Anderson.

Now that the City has finalized this contract, the consultant can begin the process of evaluating the thousands of pages of evidence pointing to the significant health and safety impacts of coal exports, submitted by experts and advocates including the Sierra Club. From increased asthma rates to decreased emergency vehicle access, the risks of exporting coal through Oakland are grave. We expect ESA's findings to concur.

The City Council was originally scheduled to approve a contract with ESA on February 16th that would have pushed the timeline well into the fall and cost the city nearly $250,000. Prior to the February council meeting, Mayor Libby Schaaf released a statement urging the council to postpone contracting with ESA to evaluate more options.

The city ultimately decided to stay with ESA, while scaling down its scope of work. In a recent statement, the mayor said, "The revised contract with ESA is more financially responsible and appropriately limits their role to validating evidence and assisting the City in its job to determine whether there is 'substantial evidence' to find 'substantial endangerment' of health and safety. The revised scope clarifies that this determination belongs to the City and not a contractor."

Hearing set for June 27

The consultant, ESA, has been given a mid-June deadline to evaluate evidence so that an initial consideration by the Council of any health and safety regulations can be heard prior to July. Acting on a recommendation from council member Rebecca Kaplan, the full council voted unanimously to take up the issue on June 27th at a special City Council meeting.

Setting June 27th for a hearing of findings is a step in the right direction to getting the city to enact a ban on coal exports, as any action the city takes to enact such a ban will require two readings of an ordinance. A first reading in June gives the council enough time to have a second reading and final vote in July, before council goes on break for summer recess.

Blocking additional fossil fuels

On May 9th, the City Council held a special public hearing to receive information, testimony, and evidence regarding the public health and safety impacts of transportation, transloading, handling, and export of fuel oil, gasoline, and crude oil in and through the City of Oakland. Although there are no current plans to ship these products through Oakland, both fuel oil and gasoline were listed among the potential commodities that could be shipped through the terminal at the army base redevelopment.

In 2014, the city passed a resolution opposing the transportation of hazardous fossil fuel materials, including crude oil, coal, and petroleum coke, through the City Of Oakland. As a follow-up to that resolution, ESA will consider the health and safety impacts of these additional fossil fuels in their report on coal.

If all goes as planned, the city will be able to introduce and pass an ordinance banning *all* fossils fuel exports, though the council has made it clear that coal is the top priority. We will be watching to make sure the council acts on their resolution to ban these dirty and dangerous products before they go on summer break. After more than a year of waiting, the people of Oakland deserve to know where their council members stand on this important issue before casting their votes in November.

To get involved in this campaign, contact Brittany King at (510)848-0800 or brittany.king@sierraclub.org.

– Brittany King

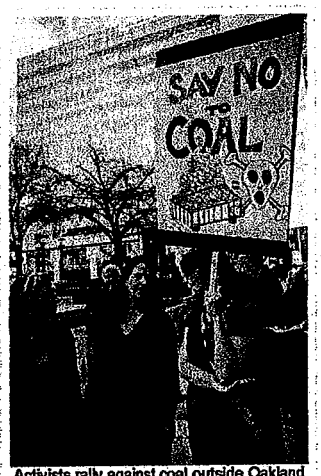
Recommend Share 10 people recommend this. Sign Up to see what your friends recommend.

Filed Under: Clean Energy and Climate

Updates on the campaign to stop coal exports through Oakland

March 23, 2016 Leave a Comment

The developers of an export terminal on City-owned land on the Oakland waterfront have solicited a partnership with four Utah counties to export up to ten million tons of coal through Oakland each year. The plan would make Oakland the largest coal-export facility on the West Coast, and would increase national coal exports by a whopping 19 percent. It would mean long, dusty coal trains coming through our communities, compromising public health, worker safety, and climate security. Here's an update on our campaign to stop the dirty deal.



Activists rally against coal outside Oakland City Hall

Poll reveals over 75% of Oakland voters oppose coal exports

The Sierra Club recently released the results of a new survey of Oakland voters' attitudes toward the coal-export proposal. The survey, which was conducted by the California-based polling firm Fairbank, Maslin, Maullin, Metz & Associates, found overwhelming public opposition to transporting coal by rail through Oakland to this terminal for export overseas.

After hearing a brief and balanced debate on the issue — including a strong argument from supporters — more than three-quarters of Oakland voters (76%) say they oppose the coal-export proposal. This includes 57% who say they are "strongly" opposed. This suggests the more that people hear about the proposal, the more they agree it is an unnecessary and risky part of an otherwise important plan to build a new export terminal in West Oakland.

The survey also suggests that Oakland City Councilmembers who oppose this proposal will enjoy greater support from voters. By a nearly three-to-one margin, voters say they would be more likely to vote for a member of the city council who opposed the coal-export proposal.

Bay Chapter organizer Brittany King summed up the survey results: "This poll clearly demonstrates what we've learned from our conversations on the ground with Oakland residents: they do not want dirty coal."

So where does the coal-export proposal stand?

The Oakland City Council has the authority to block coal exports at the army base redevelopment given the serious health and safety risks it poses. On February 16th, the city council was scheduled to

approve spending nearly $250,000 to hire consultants from Environmental Science Associates (ESA) to review information gathered at a September hearing on public health and safety impacts of coal exports, and produce findings. However, prior to the February council meeting, Oakland Mayor Libby Schaaf released a statement urging the council to postpone contracting with ESA in order to evaluate more options. She also stated that she "remains strongly opposed to the transport of coal and crude oil through our city and committed to upholding our city policy." The item was pulled from the agenda with council agreeing to revisit the coal issue in April.

State & national leaders weigh in

In late February, State Senator Loni Hancock introduced four bills to restrict the export and transportation of coal in California. However, Senator Hancock made it clear that the bills are not retroactive (they couldn't stop coal exports from the project in question) and urged the Oakland City Council to uses its authority to protect its community and prohibit coal exports from the army base redevelopment.

Van Jones, a political commentator for CNN and the president and founder of the "Green For All" campaign, shared his opposition to the proposal in the *San Francisco Chronicle*, stating that "coal is a dying industry, and it shouldn't be allowed to take the people of West Oakland down with it."

City must act soon

While the city council continues to delay action, the developers and coal interests are working behind the scenes to get the project started. Earlier this month, the Utah state legislature passed a bill that invests 53 million taxpayer dollars in the project. This Utah government funding puts the project developers one step closer to being able to push this risky deal through.

The Oakland City Council must act quickly and use their legal authority to ban coal exports, making it clear that they stand with the growing list of elected officials, community leaders, and the 76% of Oakland voters who oppose coal exports in Oakland.

Rather than invest in dirty fuels, Oakland should invest in clean-energy solutions that will bring good jobs, cleaner air and water, and a more secure economic future to the people of Oakland.

Want to get involved? Contact brittany.king@sierraclub.org or (510)848-0800. Learn more about this campaign on our website.

Brittany King

Recommend Share 7 people recommend this. Sign Up to see what your friends recommend.

Filed Under: Clean Energy and Climate

New poll reveals that over 75 percent of Oakland voters oppose coal-export proposal

February 17, 2016 Leave a Comment

Faith leaders of all denominations lined up against Oakland coal exports.

Yesterday evening, leaders from diverse faith communities came together to oppose the proposal to export coal through Oakland, and to call on the Oakland City Council to protect their communities by standing up to out of state coal companies. At the faith leaders' rally, which was followed by a prayer vigil, the Sierra Club also released a new poll that found that 76 percent of Oakland voters oppose the coal export proposal.

The poll found that 47 percent of Oakland voters have heard about the proposal to transport coal through their city, and these voters are decidedly against it. After hearing arguments from both sides, an overwhelming 76 percent of voters say they oppose the proposal. This includes a majority (57%) who oppose it "strongly." The poll suggests that this issue will be important to 2016 voters; 48 percent of respondents say they would be more likely to vote for a council member who opposes coal, while just 17 percent would be less likely.

"No community, rich or poor, should endure the effects of coal. But the environmental inequity of the coal terminal proposal cannot be disregarded," said Rev. Kenneth Chambers, pastor of West Side Missionary Baptist Church in Oakland. "West Oakland already bears a disproportionate burden of pollution, of toxic contamination from diesel exhaust spewing from thruways crisscrossing through the community. Life expectancy of West Oakland residents is far below the life expectancy of residents in the Oakland hills, and West Oakland tenants are twice as likely to visit emergency rooms for asthma as the rest of Alameda County. The West Oakland community cannot afford to have any more pollution dumped on us. We ask the City Council to stand with us over polluters and profits."

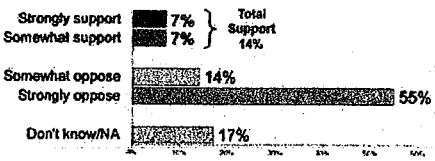


FIGURE 1:
Support for Coal Transport Proposal
(Among the 47% Familiar with the Proposal)

Nearly half of Oakland voters (47%) reported having already heard or read something about the issue of coal exports, and these voters are decidedly against the proposal (70% oppose vs. 14% support). The intensity of their opposition is remarkable, with 55% saying they "strongly oppose" the proposal to transport coal by rail through Oakland.

Faith leaders have been deeply engaged in the campaign to stop coal exports in Oakland. Congregations throughout Oakland have hosted teach-ins on the health, safety and climate impacts of coal. In addition to local Oakland clergy, prominent Bay Area faith leaders from the Jewish, Roman Catholic and Episcopal communities including the Executive Director of the Northern California Board of Rabbis, Rabbi Marv Goodman, former President of the Jesuit School of Theology, Thomas Massaro, and Episcopal Bishop Marc Andrus, have all spoken out against coal and signed onto a letter drafted by California Interfaith Power & Light, urging the City Council to ban coal exports.

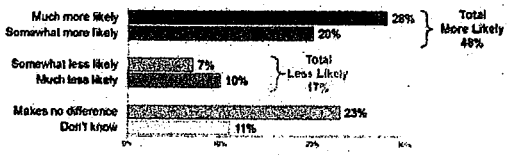


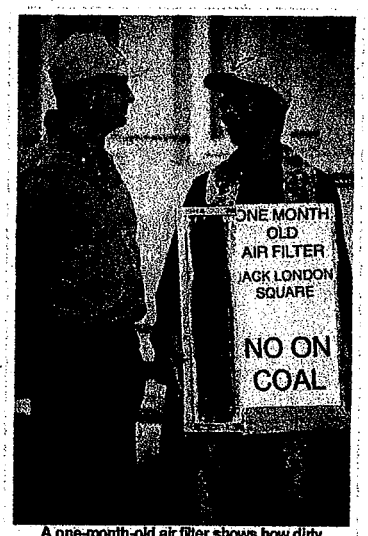
FIGURE 4:
Proposal Opposition's Impact on Vote for City Council
Suppose that your City Councilmember opposed this proposal to transport coal by rail through Oakland. Would that make you more likely or less likely to vote for them?

By nearly a three-to-one margin, voters in Oakland say they would be more likely to vote for a member of the City Council who opposed the proposal to transport coal by rail through the city for export.

"As a resident of West Oakland, a person with respiratory challenges and a faith leader, I am profoundly concerned about the health and environmental impacts of transporting coal through our city," said Archdeacon of the diocese of California, Carolyn Bolton. "I strongly oppose the development of a coal terminal in our already vulnerable and highly impacted community."

"Oakland should not be involved in shipping coal overseas, since this fossil fuel is the major contributor to climate change," said Margaret Rossoff of the Sunflower Alliance. "Coal needs to be left in the ground and replaced with renewable resources."

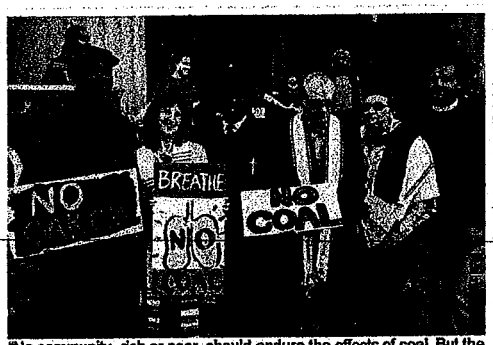
"This poll clearly demonstrates what we've learned from our conversations on the ground with Oaklanders," said Brittany King of the San Francisco Bay Chapter of the Sierra Club. "Oakland residents do not want dirty coal exports in their city. The City Council has the legal authority to ban coal due to the health and safety risk this dangerous commodity poses to Oakland residents. It's time for our elected leaders to make it clear that they stand with the 76% of Oakland voters who oppose coal exports in Oakland.



A one-month-old air filter shows how dirty Oakland's air is already.

This survey should send a clear message to the Oakland City Council: voters are decidedly opposed to the idea of transporting dirty coal through their city. By nearly a three-to-one margin, voters in Oakland say they would be more likely to vote for a member of the City Council who opposed the proposal to transport coal by rail through the city for export. And poll results suggest that the more that people hear about the proposal, the more they agree it is an unnecessary and risky part of an otherwise important plan to build a new export terminal in West Oakland. Rather than invest in the dirty fuels of the past, Oakland City Council members should be investing in

the clean energy solutions that will bring good jobs, cleaner air and water, and a more secure economic future to the people of Oakland.



"No community, rich or poor, should endure the effects of coal. But the environmental inequity of the coal terminal proposal cannot be disregarded," said Rev. Kenneth Chambers, pastor of West Side Missionary Baptist Church in Oakland.

Background: A portion of the former Oakland Army Base is being developed as a bulk export facility, known as the Oakland Bulk and Oversized Terminal (OBOT). CCIG, the developer, promised not include coal as a commodity handled by the terminal, but now they are soliciting a partnership with four Utah counties that could allow the state to export up to 10 million tons of coal from their mines each year. A Utah funding body approved $53 million to buy space at Oakland Bulk Terminal for these exports. This deal is being conducted behind the backs of the Oakland City Council and the Port, both of oppose coal as a commodity for shipping in Oakland. Additionally, the developer promised residents that the city-owned port would be coal free. While the Mayor, members of the council and residents have demanded a stop to these talks, the developer has yet to abandon the plans.

Those opposing the plan to export coal through Oakland have voiced concerns over how this decision will affect the community's safety, the environment, and public health. According to a national train company, each open-top rail car of coal can lose up to one ton of dust between the mines and the port, resulting in the release of 60,000 pounds of toxic fine particulate matter in communities near the rails. Additionally, this deal will stifle California's strong commitment to cutting carbon pollution, especially as the state continues to suffer from extreme drought, forest fires, and other signs of climate disruption.

Read more in the Yodeler and on our website.

Recommend Share 2 people recommend this. Sign Up to see what your friends recommend.

Filed Under: Clean Energy and Climate

Teach-in to connect #CoalFreeOakland campaign to struggles for social, racial, and economic justice

December 3, 2015 Leave a Comment

At a September meeting of the Oakland City Council, members of the International Longshore and Warehouse Union testified that coal exports would have a major impact on worker health and safety.

Speaking from Paris, where she's attending the international climate conference, Oakland Mayor Libby Schaaf told a reporter for the Bay Area News Group that "the handling of coal is a great example of an issue that crosses areas of climate change, public health, and as well as equity." Mayor Schaaf was responding to questions about how Oakland could claim to be a climate leader while allowing a plan to export millions of tons of coal out of a new terminal on the city's waterfront.

Schaaf's statement was right on the money, but words alone won't keep coal dust out of our lungs and out of our atmosphere. To help grow momentum for the campaign to keep Oakland coal-free, we're hosting a rally and teach-in in partnership with a coalition of progressive activists who are united in the struggle for environmental, social, racial, and economic justice.

WHAT: #CoalFreeOakland Rally and Teach-in
WHEN: Tuesday, December 8th, 5:30 to 7 pm
WHERE: Oakland City Hall (rally) and 436 14th Street, Second Floor (teach-in)
RSVP HERE

Our advocacy over the past six months has helped push Oakland's city council to acknowledge that they have the power to block coal exports at the new terminal on the grounds that it's hazardous to public health and safety. Unfortunately, the City Council has delayed action on this issue to February 16th.

Until then, we need to keep the pressure on City leaders and keep educating our fellow Bay Areans about why this coal-export deal would be a disaster for public health, worker safety, and the climate.

Tuesday's teach-in will connect the struggle for environmental justice with struggles for social, racial, and economic justice. Meet us first at City Hall for a rally and action, and then join the informal discussion and teach-in nearby, at 436 14th Street, Second Floor. The teach-in will feature speakers from a broad intersection of Oakland's progressive activist groups, including:

Black Lives Matter
Fight for $15
The anti-displacement coalition Oakland Citywide Network
No Coal in Oakland

When we stand together we win. If you believe in a coal-free future for the Bay Area, we need you standing with us.

Questions? Email conservation organizer Brittany King. Read more about this issue on our website at sierraclub.org/sfbay/coalfreeoakland.

Recommend Share 73 people recommend this. Sign Up to see what your friends recommend.

Filed Under: Clean Energy and Climate

Sierra Club and community partners keep pressure on Oakland City Council to ban coal exports—Join Dec. 8 teach-in and action

November 13, 2015 Leave a Comment

Margaret Gordon testifies at the Oakland City Council's hearing on the public health and safety impacts of coal exports. She said, "If we bring in coal we can't boast about being a green city."

Since the Oakland Army Base adjacent to the Bay Bridge was decommissioned in 1999, Oakland officials and community groups have been planning a project at the site of the former Army Base that would benefit the local economy and clean up the local environment. That vision of the project is now in jeopardy.

The redevelopment project, now called the Oakland Global Trade & Logistics Center (aka Oakland Global), is being built by private developer Phil Tagami. Last April, the Sierra Club discovered that Tagami had been in backroom talks with four Utah counties to make a deal that would dedicate at least half of the planned Oakland Global bulk marine terminal's capacity to exporting millions of tons of Utah coal abroad. This deal would make Oakland the largest coal-exporting site on the West Coast, and would increase national coal exports by 19%!

Hundreds of anti-coal protesters at Oakland City Hall

Tagami has solicited hundreds of millions of public dollars to make Oakland Global a reality. Perversely, if the coal deal is allowed to go through, our taxpayer dollars will fund a project that would make air quality worse in West Oakland, a community that's already overburdened by pollution.

That's why we have spent the last six months fighting alongside labor, environmental justice, faith, and community groups to counteract the influence of private developers and coal companies at Oakland City Hall. To protect communities from West Oakland to Utah, and to put a stop to the catastrophic climate change caused by burning fossil fuels, this coal needs to stay in the ground. Oakland Global can and should be a success without transporting toxic fossil fuels.

After a summer of activism, the City Council acknowledged thousands of community petitions by hosting a public hearing on the potential health and safety impacts of local coal exports. On September 21st, hundreds of residents, activists, and experts came to City Hall and spoke out against coal exports.

Thanks to community pressure, the Council then ordered staff to review public testimony, and investigate courses of potential action.

Because of the imminent threats to the health and safety of the workers and the community that coal exports pose, the Oakland City Council has the legal authority to ban coal exports from the Oakland Global terminal. They set December 8th as a deadline for themselves to take action on this issue — though action may now be delayed. We need to stand strong on December 8th and demand immediate action on this urgent issue.

For the city to finalize the coal exports ban, an ordinance will have to see at least two more readings. Thus, the Council will need to take at least two more meetings in the beginning of next year to finalize the ban.

WhatYouCanDo

Join us on December 8th as we return to City Hall for a teach-in and action calling for an end to this crazy coal plot. We have a better vision for Oakland: good, safe jobs, healthy communities, and public land used for the public good. Now it's time to make our voices heard and make this vision a reality.

WHAT: Teach-in and action for a coal-free Oakland
WHEN: Tuesday, December 8th, 5:30 to 7 pm
WHERE: Oakland City Hall

If you are an Oakland resident, please take the time to call your council member now and ask them to vote to keep Oakland coal free! If you are not an Oakland resident, please call Mayor Schaaf and tell her that coal exports would be a disaster for the local economy, public health and safety, and climate.

Dan Kalb, District 1, (510) 238-7001
Abel Guillen, District 2, (510) 238-7002
Lynette Gibson McElhaney, District 3, (510) 238-7003
Annie Campbell Washington, District 4, (510) 238-7004
Noel Gallo, District 5, (510) 238-7005
Desley Brooks, District 6, (510) 238-7006
Larry Reid, District 7, (510) 238-7007
Rebecca Kaplan, At Large, (510) 238-7008
Mayor Libby Schaaf, (510) 238-3141

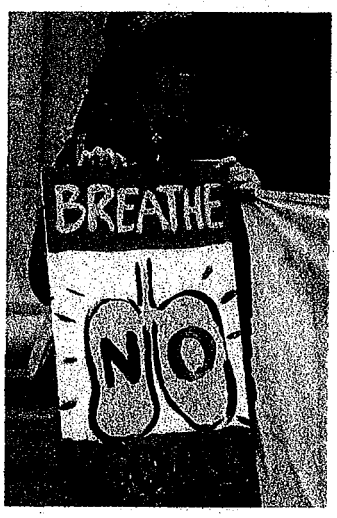
Jeremy Gong

Recommend Share One person recommends this. Sign Up to see what your friends recommend.

Filed Under: Clean Energy and Climate

Sign up to testify against Bay Area coal exports at Mon, Sept 21 hearing in Oakland

September 16, 2015 Leave a Comment



For those of you planning on attending the September 21st hearing on the health and safety impacts of proposed coal exports out of Oakland, **you can now sign up online to tell the City Council why you think coal exports are wrong for the Bay Area.** You don't need to be an expert to testify; you just need to care about your community and your planet. We'll have talking points available at the event.

Even if you don't like to speak in public we still need you to fill out a speaker card, since you can cede your time to give other people more time to make the case against coal exports — but note that in order to cede your time you need to be present at the event. Here's how to sign up:

1. Click here to open the Speaker Card form.
2. Type "4" in the box labeled Agenda Item Number. Enter your name and contact information. Select City Council in the Comm/Council Name drop-down menu, and pick the

date September 21 in the calendar. You don't have to fill out any of the items after the date. Click Submit!

3. Send an email to jess@sfbaysc.org to let me know that you signed up. You can let me know if you want to speak or if you want to cede your time.
4. Show up next Monday, September 21st, between 3:30 and 7 pm at Oakland City Hall, 3rd floor council chambers.

We know coal is the dirtiest fossil fuel on the planet and the largest contributor to climate disruption. The only question that remains is whether there is the political will to put the health and safety of our kids and the future of humanity before corporate profits. **By showing up next Monday you can help build the political will to make the right choice for Oakland and the entire Bay Area.**

Recommend Share 26 people recommend this. Sign Up to see what your friends recommend.

Filed Under: Clean Energy and Climate

Next Page»

TOP OF PAGE

COPYRIGHT © 2016 · NEWS THEME ON GENESIS FRAMEWORK · WORDPRESS · LOG IN

Recommend Share One person recommends this. Sign Up to see what your friends recommend.

ENVIRONMENTAL, HEALTH AND SAFETY IMPACTS

OF THE

PROPOSED

OAKLAND BULK AND OVERSIZED TERMINAL

Prepared
for
Sierra Club

September 21, 2015

by

Phyllis Fox, Ph.D., PE
Consulting Engineer

EXHIBIT B

INTRODUCTION

The California Capital Investment Group (CCIG) has entered into a 60-year lease with the City of Oakland to redevelop the Oakland Army Base. As part of this larger project, located within the Port Authority Outer Harbor in Oakland in the West Gateway Complex, there is a proposed terminal called the Oakland Bulk and Oversize Terminal (OBOT or Terminal).[1] The leasable area consists of 12.45 acres of land area and 7.86 acres of wharf. CCIG currently has an exclusive option agreement with Terminal Logistics Solutions (TLS) to develop the OBOT.[2] Thus, CCIG is the long-term lease holder and TLS is the tenant of CCIG.

The only publicly available design information on this Terminal is a July 15, 2015 Basis of Design (BOD) report (7/16/15 BOD)[3] and a series of "DRAFT" "conceptual drawings" showing the possible layout for a two commodity bulk terminal.[4] The information in these sources could change significantly as design proceeds, as funding is firmed up for the project, and during acquisition of the many permits that will be required. My comments in this report are based on the 7/16/15 BOD, conceptual drawings, and various news reports. Thus, they are subject to revision as the Terminal design is finalized. My conclusions reached in this report from reviewing this material are as follows:

- **Terminal Design:** The recently posted Basis of Design plans are conceptual, meaning they can change at any time. More specific plans will be needed to obtain permits such as air quality permits from BAAQMD. There are no enforceable conditions requiring any of the potential controls outlined in these materials, e.g., covered rail cars, enclosed storage piles and conveyors, etc.

- **Design Drawings**: The design drawings indicate that the material handling equipment – storage domes and sheds, conveyors, loaders, etc. -- will not be located in an enclosed structure. Thus, there will be emissions of PM, PM10, and PM2.5 from all of the material handling equipment. Without more specific plans, it is not possible to quantify emissions.

- **Water Usage and Pollution:** This project will be a major user of California's scarce water if it handles coal or other dusty material. Water is required to control dust during rail car unloading, at storage piles within enclosures, at drop points, and during ship loading. Based on experience at other terminals, and assuming throughput of 9.9 million tons per year of coal, 79.2 million gallons of water would be required every year to control dust. Per capita water use in Oakland is only 71.7 gallons per person per day.

---

[1] http://www.oaklandglobal.com/index.php/project/about/project-overview.

[2] *See* FAQ, http://tlsoakland.com/faq/.

[3] FDR, Basis of Design, Oakland Bulk and Oversized Terminal, California Capital Investment Group, Preliminary Engineering, July 16, 2015, http://tlsoakland.com/pdf/4.pdf.

[4] Conceptual Drawings, http://tlsoakland.com/pdf/19.pdf.

Thus, the water required to control dust at the proposed Terminal could supply over 3,000 Oakland residents every year. In the middle of a record-setting state drought, which exporting and burning coal will further exacerbate, this is not an appropriate use of Oakland's limited water supply. Further, the design plans have no information on how wastewater containing coal dust will be disposed. If discharged into San Francisco Bay, it could have many detrimental impacts on water quality and aquatic organisms.

- **Coal Dust:** As CCIG's[5] and TLS's[6] recent submissions seem to indicate, the coal rail cars will most likely be uncovered. The coal loss from an uncovered bottom unloading car during a typical 400 mile trip is 45 lb from the bottom and 600 lb from the top, for a total of 645 lb per car.[7] Up to 3% of the coal loaded into a coal car can be lost in transit, which for a coal car carrying 121 tons would be 3.63 tons/car or more than 7000 lbs/car. Assuming 3 trains/day, up to 68,500 tons/yr of coal dust could be emitted from trains carrying coal from Utah to the Terminal. Assuming entry at Donner Pass, the shortest route, at least 200 miles of this route are in California. Thus, about 27% of the coal dust or about 18,300 tons/yr could be released within the state in communities like Sacramento, Davis, Richmond, Berkeley, Emeryville, and Oakland. Coal dust includes fine particles, both PM10 and PM2.5,[8] which are directly linked to health problems, including premature death, heart attacks, asthma and other problems. Coal dust can also contaminate air, water and soil, and adjacent homes, schools, and other buildings.

- **Diesel Particulate Matter:** The unit trains importing coal will be powered by up to five locomotives, which emit diesel particulate matter, a potent carcinogen that will pose significant public health risks in communities along the rail lines and adjacent to the Terminal.

- **Traffic, Noise, Vibration, Visual Impact:** The unit trains importing coal and the Terminal itself would also result in significant traffic, noise, and vibration impacts.

- **Mitigation:** None of the impacts that I discuss in this report were anticipated in the CEQA review of this Project. Further, none of the mitigation measures attached in the Sept. 8, 2015 Stice & Block Letter from the project's CEQA review[9] would address these impacts. Rail car coal dust, for example, is not regulated by any of the permits that the Terminal must obtain.

---

[5] Letter from David C. Smith, Stice & Block, LLP, to Sabrina Landreth, City of Oakland, Re: September 21, 2015, Oakland City Council Public Hearing, September 8, 2015 plus attachments (Sept. 8, 2015 Stice & Block Letter).

[6] Edward J. Liebsch and Michael Musso, HDR Engineering, Oakland Bulk and Oversized Terminal Air Quality & Human Health and Safety Assessment of Potential Coal Dust Emissions, September 2015 (Sept. 2015 HDR Report).

[7] Minutes, Rail Energy Transportation Advisory Committee, September 10, 2009, http://www.scribd.com/doc/129350651/Surface-TransMinutes-9-10-09-1.

[8] Daniel Jaffe and others, Diesel Particulate Matter and Coal Dust from Trains in the Columbia River Gorge, Washington State, USA, Accepted for publication in Atmospheric Pollution Research, April 23, 2015.

[9] Sept. 8, 2015 Stice & Block, Ex. A.

My resume is included in Exhibit 1 to these comments. I have over 40 years of experience in the field of environmental engineering, including air emissions and air pollution control; greenhouse gas emission inventory and control; air quality management; water quality and water supply investigations; hazardous waste investigations; hazard investigations; risk of upset modeling; environmental permitting; nuisance investigations (odor, noise); environmental impact reports/statements, including California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) documentation; risk assessments; and litigation support.

I have M.S. and Ph.D. degrees in environmental engineering from the University of California at Berkeley with minors in Hydrology and Mathematics. I am a licensed professional engineer (chemical, environmental) in five states, including California; a Board Certified Environmental Engineer, certified in Air Pollution Control by the American Academy of Environmental Engineers; and a Qualified Environmental Professional, certified by the Institute of Professional Environmental Practice.

FACILITY DESIGN

The design capacity of the Terminal is reported in the 7/16/15 BOD as 9.9 million tons/yr (MT/yr), with a stabilized throughput of 75% of design or 6.9 MT/yr for two commodities, designated Commodity A and B.[10] Prior information posted on the applicant's website suggested a significantly higher throughput, 26.3 MT/yr.[11]

The commodities will be shipped in Handymax, Panamax, and Capesize[12] vessels. No dredging is anticipated to accommodate these vessels, assuming the Capesize vessels are lightly loaded to 143,000 tons.[13] The rail cars will have a net capacity of 121 tons and are described as "North American Covered Hopper Cars equipped with removable, fiberglass covers".[14] The current design plans suggest that most conveyors will be enclosed, with the possible exception of pipe conveyors connecting the railcar dumper to storage. Commodity A will be stored in a series of longitudinal stockpiles located within a "storage building"[15]. Commodity B will be stored in top-filled, concrete storage domes vented to a dust collection system.

The design calls for trains of 104 railcars each (referred to as "unit trains" in this report) to import these commodities. The analysis below indicates that two to three unit trains of 104 railcars each, potentially all carrying coal, will visit the Terminal every day the Terminal is operating or 362 days per year, assuming the design throughput in the 7/16/15 BOD. However,

[10] 7/16/15 BOD, p. 1, Sec.2.2.

[11] Oakland Global, Project, http://www.oaklandglobal.com/index.php/project/about/project-overview reports handling up to 12, 50-car trainloads per day. Assuming a net capacity of 121 tons per car (7/16/15 BOD, Table 9-1), this amounts to: 12 x 50 x 121 x 362 day/yr = 26,281,200 ton/yr.

[12] A capsize vessel is too large to fit through the Panama Canal and must sail around a cape.

[13] 7/16/15 BOD, Table 8-1.

[14] 7/16/15 BOD, Table 9-1.

[15] Drawing BMH-142, Commodity A Storage Building Section.

if the throughput reported in the Project description of 26.3 million tons of coal per year is assumed, many more unit trains would visit the Terminal each day.

Commodity A

Commodity A is characterized as "very dusty, exhibits spontaneous combustion behavior, potentially explosive".[16] This description coupled with other information in the 7/16/15 BOD, Table 9-1, indicates that Commodity A is most likely coal. This is supported by investigative news reports and e-mail correspondence, identifying Utah coal as the likely source.[17] Commodity A will be blended, suggesting coal from different mines or seams will be blended during loading at the Terminal to meet import requirements.

Commodity A railcars are expected to be bottom dump aluminum construction, closed-top hopper cars with a cargo capacity of about 121 tons.[18] Thus, a train carrying Commodity A will carry 12,584 tons[19]. As 75% of the Terminal design throughput is designated for Commodity A, about 2 unit trains per day carrying coal will visit the Terminal.[20]

Commodity B

Commodity B will have a design throughput of 1.7 MT/yr[21] and is characterized as "very dusty, hygroscopic."[22] Hygroscopic materials absorb water from the air and include many materials including coal, as well as soda ash, cellulose fibers, many fertilizers, salts, and

---

[16] 7/16/15 BOD, Table 9-1.

[17] Project Could Transform Local Coal Market to International, The Richfield Reaper, April 7, 2015 ("The purchase of Sufco by Bowie [Resources] is what's driving all of this,"...He said Bowie is interested in expanding its coal shipping capacity to international markets, which would make the coal industry in Utah viable over a longer period of time....By purchasing a portion of the port's capacity, the four partner counties would be able to use 49 percent of an estimated 750,000 tons of shipping capacity each year to ship coal and other products."), http://www.richfieldreaper.com/news/local/article_e13121f0-dd67-11e4-b956-3ff480cc1929.html; Darwin BondGraham, Banking on Coal in Oakland, East Bay Express, August 19, 2015, http://www.eastbayexpress.com/oakland/banking-on-coal-in-oakland/Content?oid=4463888; Utah Wants to Send Trainloads of Coal to California Ports, AllGov California, http://www.allgov.com/usa/ca/news/california-and-the-nation/utah-wants-to-send-trainloads-of-coal-to-california-ports-150428?news=856347; Brian Maffley, Utah Coal: California, Here It Comes – And Not Everyone is Happy, August 14, 2015, The Salt Lake Tribune, http://www.sltrib.com/home/2425141-155/utah-coal-california-here-it-comes; Doug Oakley, Unlikely Partners: Utah Investing $53 Million to Export Coal through Oakland Port, San Jose Mercury News, April 24, 2015; Confidential Communications: (1) cjarrett02@gmail.com to Brody & Amber Keisel, April 8, 2015 ("...the script was to downplay coal, and discuss bulk products and a bulk terminal...); (2) Brody Keisel to Steve Frischknect, April 8, 2015, attaching CIB Presentation; (3) Jeff Holt to Jae Potter, April 24, 2015.

[18] 7/16/15 BOD, p. 12, Sec. 12.1.1.

[19] Amount of coal carried per train: 104 rail cars x 121 tons/car = 12,584 tons/train.

[20] The maximum number of unit trains carrying Commodity A per day = 0.75(9.92x10^6 ton/yr)/12,584 ton/train = 591 unit trains/yr. As the Terminal will operate 362 days/yr (7/16/15 BOD, p. 5), this means that on average,591/362 = 1.6 unit trains per day or up to 2 unit trains carrying Commodity A will visit the Terminal every day the Terminal is operating.

[21] 7/16/15 BOD, Table 6-1.

[22] 7/16/15 BOD, Table 9-1.

limestone. Commodity B railcars are expected to be steel construction, closed top, bottom dump hopper cars, with a cargo capacity of about 99 tons.[23] A train carrying Commodity B will import 10,296 tons per unit train[24]. Commodity B will not be blended. As 25% of the Terminal design throughput is designated for Commodity B, about one unit train per day on 241 days will carry this unidentified material to the Terminal.[25]

While two separate materials are identified, the design of the facility and the lack of any enforceable conditions would allow 100% of the throughput to be coal.

Dust Control

The BOD indicates the facility will use Best Control Technology (BCT) to control emissions. Public relations information[26] indicates all commodities handed at the Terminal will be:

- transported from origin to the Terminal in specially designed covered rail cars;
- discharged from the covered rail cars into an enclosed underground unit with dust control/collection technology;
- moved within the Terminal in enclosed conveyance systems with dust control/collection technology;
- stored within enclosed dome storage unit(s) with dust control/collection technology; and
- loaded onto the vessels using enclosed state-of-the-art ship loaders with dust control/collection technology.

Commodity A will be stored in a series of covered longitudinal stockpiles and will be reclaimed using dozers. Dust will be controlled by dry fog and/or water spray at the covered railcar dumper building, covered bulk material storage buildings, enclosed transfers, enclosed/covered conveyors, and dry fog and/or water spray at transfer points and stockpiles.

Commodity B will be stored in two concrete storage domes equipped with a dust control system and reclaimed by gravity onto a series of reclaim conveyors in above-ground tunnels underneath the domes. Dust will be controlled using the following:

---

[23] The 7/16/15 BOD, Table 9-1 indicates a net capacity of 121 tons for railcars importing both Commodities A and B.

[24] Amount of Commodity B carried per unit train: 104 cars/train x 99 ton/car = 10,296 tons/unit train.

[25] Maximum number of unit trains carrying Commodity B per day = $0.25(9.92 \times 10^6$ ton/yr)/10,296 ton/train = 241 unit trains/yr. As the Terminal will operate 362 days/yr (7/16/15 BOD, p. 5), this means that one unit train carrying Commodity A will visit the Terminal on 241 days.

[26] TLS, FAQ: Frequently Asked Questions, http://tlsoakland.com/faq/.

- cartridge style, pulse-jet dust collectors or bin vents
- unloading boots, enclosed hopper and dust collection at the covered railcar dumper building
- enclosed storage domes with dust collection
- enclosed conveyor transfers
- covered conveyors
- dust collection at transfer point and shiploader (only "as required")
- dust collectors will include rotary air lock.

The design drawings indicate that the material handling equipment – storage domes and sheds, conveyors, loaders, etc. will not be located in an enclosed structure.[27] Thus, there will be emissions of PM, PM10, and PM2.5 from all of the above identified equipment.

ENVIRONMENTAL IMPACTS

The environmental impacts cannot be fully determined based on the available information, reviewed above. However, a similar proposal to export coal from the Port of Oakland was rejected by the Port of Oakland in connection with the proposed Howard Terminal. The issues identified by the Port of Oakland are outlined in a staff report that found significant environmental issues associated with handling export coal.[28] These impacts included:

At the Terminal:

- Fugitive coal dust and local air quality, requiring storage domes; enclosed conveyors and ship-loader systems;
- Risk of explosions;
- Impact of train length, up to 1.5 miles, on rail crossing in densely populated areas along route;
- Berth dredging to accommodate larger and more heavily laden vessels;
- Visual impacts of storage domes and other structures;
- Noise and vibrations from loading, unloading, and conveyor system;
- Construction impacts;
- Diesel particulate matter from train and ship engines;
- Greenhouse Gas (GHG) emissions from shipping coal from Utah to Oakland and Oakland to Asia.

[27] Conceptual Drawings, http://tlsoakland.com/pdf/19.pdf.

[28] Port of Oakland Memo from Anne Whittington to Richard Sinkoff, Re: Environmental Issues Associated with Handling Export Coal, February 19, 2014.

Transport from Mine Source to Terminal:

- The loss of up 12 tons of coal dust, assuming control using surfactants;
- Impacts of train lengths of up to 1.5 miles on rail crossing and noise from train safety horns and rail crossing barriers in communities along the rail line (Completely covering the rail cars could eliminate the dust.)

Coal Consumption in Asia:

- Inconsistent with California climate change policy
- Inconsistent with California Joint Resolution 35, Chapter 139[29]
- Inconsistent with goal to promote cleaner domestic energy source
- Potential to increase acid rain and mercury deposition in the Pacific Ocean and Western U.S. from Asia due to wind patterns

All of these issues apply to the current proposal with the possible exception of the need to dredge. In addition, the proposed Terminal presents the following additional issues not addressed in the Howard Terminal analysis:

- Water use for dust control
- Seismic-induced liquefaction and lateral spreading hazards due to site-specific soil conditions
- Impacts of coal spills on California's water supply
- Covered rail car issues
- Ignitability and spontaneous combustion
- Visual impacts of huge storage domes
- Impact of increase in rail and ship traffic on other operators within the Port of Oakland and elsewhere in San Francisco Bay

Some of these issues are discussed below.

Water Use

The major coal handling operations at the Terminal are enclosed. However, water is still required to control dust during unloading,[30] at storage piles within enclosures, at drop points, and during ship loading. Based on experience at other terminals, about 8 gallons of water are required per ton of coal throughput to control dust.[31] Assuming 100% of the Terminal's design throughput of 9.9 million tons per year is coal or another similarly dusty material, 79.2 million

[29] California Legislative Information, Assembly Joint Resolution No. 35, Chapter 139, Relative to Exportation of Coal, Approved by Governor, September 18, 2012, Filed with Secretary of State, September 18, 2012.

[30] See the significant amount of water used for coal unloading in the video, Unloading Coal via Rotary Dump, proposed for the Terminal, at: http://www.coalcap.com/press.asp.

[31] George D. Emmitt, Minimizing Groundwater Consumption for Required Fugitive Dust Control Programs, http://www.powerpastcoal.org/wp-content/uploads/2011/08/MINIMIZING-GROUNDWATER-CONSUMPTION-FOR-REQUIRED-FUGITIVE-DUST-CONTROL-PROGRAMS.pdf.

gallons of water would be required every year to control dust. In comparison, per capita water use in the area where the Terminal will be located is 71.7 gallons per person per day.[32] Thus, the water required to control dust at the proposed Terminal could supply over 3,000 Oakland residents every year.

California is currently experiencing a record-setting drought that started in 2012 and recently culminated in the first ever mandatory state-wide water restrictions. The April 2015 snow water equivalent was at only 5% of its historical average.[33] The snowpack is the major source of California's water supply, filling its reservoirs as temperatures warm and the snow melts. The record low snowpack coincides with record high January to March temperatures, highlighting the modulating role of temperature extremes in California drought severity. These results foreshadow major future impacts of climate change on the state's water supply. Further, the export of this coal will contribute to global warming and thus aggravate California's water supply situation. Therefore, the use of the state's severely depleted water supply, which is likely to remain so in the future, at a coal terminal that will aggravate the water supply deficit and contribute to global warming, is not a reasonable beneficial use of the State's limited water supply.

Wastewater Disposal

The 79.2 million gallons of water used each year to control dust will be highly contaminated with coal particles and other materials. The documents that I have reviewed identify only "process water collection and treatment facilities" but don't disclose whether "process water" is dust control wastewater nor what type of treatment would be used.[34] Conceptual drawing GC-100 identifies a "washdown treatment vault" with discharge to the Bay. These terms, "process water" and "washdown water", are ambiguous and have no special meaning. If the dust control wastewater is discharged into the Bay, it would result in significant biological impacts due to high amounts of suspended coal particles.

Accidents

The trains carrying Utah coal to the Terminal would most likely enter California in the northern part of the State, traveling via the Feather River Canyon or Donner Pass to the Bay

---

[32] SWRCB, July 2015 Water Conservation Report by Supplier, Excel Spreadsheet: October 2014 – April 2015 Urban Water Supplier Report, http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/conservation_reporting.shtml.

[33] S. Belmecheri et al., Multi-century Evaluation of Sierra Nevada Snowpack, Correspondence, Nature Climate Change, Advance Online Publication, September 14, 2015, http://www.nature.com/articles/nclimate2809.epdf?referrer_access_token=O7tjNvIGP2FXqNF-SJoocdRgN0jAjWel9jnR3ZoTv0MaTV2Rp6vP_EsijdwLJ1-6EMR-RFne5yHuc6YcKNVdCtzoyQ7rj7-QHAuGoydFDdl1GZvEKF_67xl1s32_i8IPfhF0DEEuVeX5gAS68cB5EzrRSO82GCWkqLz34Tmpso7K6rK_mAzmIsrJg7fm6zadxUJGEjxWuUWxeWbRCNrCqvXZGoKMz5WRE6T8-shfV6Iw2TQViyHAL47SGFeDXq6ddrl1KKQLA8Ohmsd4Z95MNwb4qEhsDB903Y4RdbzuGEulOtUpQO0HL41qQaVQp70IzN0AWUuIa5VJDXrPna5LIUUyusya39rwBp72lNCk__zfHqyaN14_6HG4oPUnFZKu&tracking_referrer=www.nytimes.com.

[34] 7/16/15 BOD, p. 4.

Area.[35] Thus, they will travel through some of the state's most densely populated areas, as well as some of its most sensitive ecological areas, as rail lines frequently operate near or over rivers and other sensitive waterways in the state.

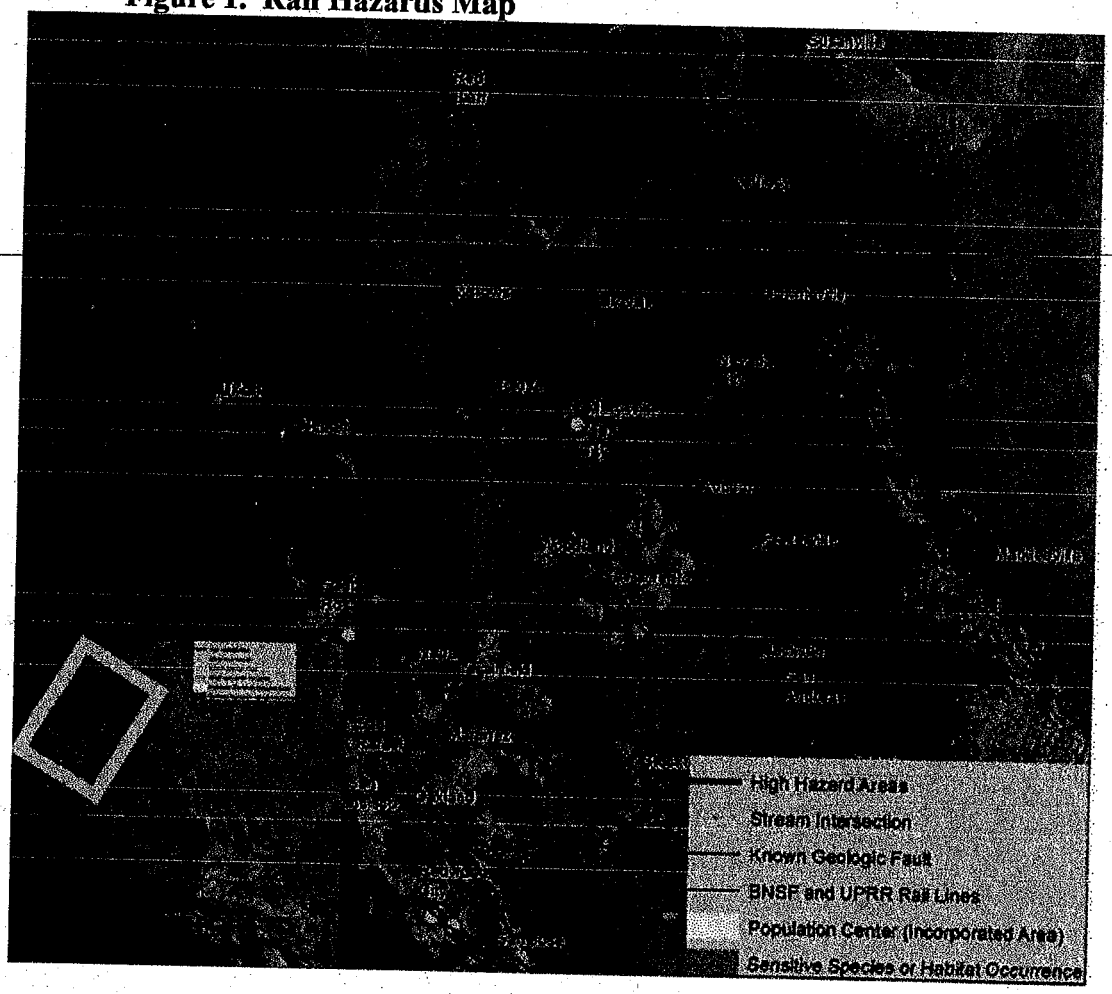
The two most likely routes include numerous "high hazard areas" where accidents are likely due to poor track and infrastructure conditions, e.g., steep grades, poor track condition, bridges in poor condition.[36] See red segments on Figure 1. An accident in these areas could result in a major release of coal into the State's water supply, which would be very difficult to cleanup due to the nature of coal. This could shut down the water supply for much of the state, resulting in significant statewide impacts on agricultural and municipal water supplies as well as significant aquatic biological impacts. A recent derailment in this area, involving corn, rang alarm bells as to the consequences if a more hazardous substance, such as coal, were involved.[37]

[35] See map of U.S. Major Freight Rail Lines at: http://earthjustice.org/features/map-crude-by-rail?utm_source=crm&utm_content=image&curation=ebrief. See also: Cambridge Systematics, Inc., National Rail Freight Infrastructure Capacity and Investment Study, September 2007, Figure 4.1, http://www.camsys.com/pubs/AAR_Nat_%20Rail_Cap_Study.pdf.

[36] Interagency Rail Safety Working Group, State of California, Oil by Rail Safety in California. Preliminary Findings and Recommendations, June 10, 2014.

[37] Tony Bizjak, Feather River Train Derailment Raises New Concerns, Sacramento Bee, December 6, 2014, http://www.sacbee.com/news/local/transportation/article4315150.html. See also: http://www.abc10.com/story/news/local/california/2014/11/26/train-derailment-feather-river-canyon/70133634/.

Figure 1. Rail Hazards Map



Further, the coal trains themselves could increase the probability of an accident by increasing the load on the tracks and by depositing coal dust on the tracks and in the track ballast, which are well known causes of train accidents. Coal trains weigh much more than other types of trains travelling these routes. The unit trains proposed to call at the Terminal loaded with coal, for example, weigh 15,600 tons[38] compared to 5,000 tons per train for double stack container trains, 8,500 tons for manifest trains, and 10,000 tons for grain trains.[39] The extra weight from these coal-carrying trains would pose additional stresses on the tracks, increasing the probability of accidents.

Further, unit trains have recently started importing crude oil to Bay Area refineries, using these same routes. A significant future increase in these crude trains is anticipated. The cumulative increase in unit crude oil and coal trains is a potentially deadly combination,

---

[38] Weight of 104 car unit train carrying coal: (104 cars)(130 tonne/car)(1.1 ton/tonne) + (5 locomotives)(150 ton/locomotive) = **15,622 tons.**

[39] Railway Capacity Background & Overview, http://www.quorumcorp.net/Downloads/Papers/RailwayCapacityOverview.pdf.

increasing derailment risk for both coal and oil trains.[40] Oil train derailments can decimate entire communities. The blast zones—within one mile of the rail tracks—for oil trains disproportionately impact environmental justice neighborhoods, communities with racial minorities, low incomes, or non-English speaking households.[41]

Coal Dust

Coal dust from both trains and the Terminal is notoriously difficult to control and results in numerous significant environmental impacts. The 7/16/15 BOD asserts that product will arrive at the Terminal in "North American Covered Hopper Cars", equipped with removable, fiberglass covers,[42] suggesting coal dust from the unit trains will be controlled. However, there is no enforceable condition to require that the rail cars be covered and shippers have historically resisted covering due to cost. The City and other permit-issuing agencies, such as the Bay Area Air Quality Management District, are likely preempted by federal law from regulating coal cars along the rail lines,[43] outside of the Terminal. Thus, the Terminal operator and the shippers can import coal in uncovered cars, regardless of assertions in the 7/16/15 BOD or elsewhere. The most recent Sept. 2015 HDR report prepared for California Capital Investment Group also analyzes uncovered coal cars.

Transporting coal in uncovered cars is standard industry practice to cut costs. Thus, most coal cars are uncovered. Covered rail cars have historically been used to transport bulk commodities such as grain, cement, fertilizers, food and sand, but not coal. While many companies are working on cover designs for coal cars, my research to date has not identified a commercial source for covered coal rail cars. Several companies have developed prototypes, but none are in commercial production. As there are no enforceable conditions requiring that the cars be covered, the applicant and Terminal users have no obligation to use covered rail cars. Thus, it is reasonable to assume that the rail cars servicing the Terminal will be uncovered. Therefore, I discuss some of the issues that will arise if the cars are not covered followed by a discussion of issues with covered cars, should they be used.

Coal dust can result in significant environmental impacts for two principal reasons. First, in California (and many other states), the rail lines parallel waterways. As shown in Figure 1, the two most likely rail routes to Oakland follow rivers and pass through the Sacramento-San Joaquin Delta, the largest and most biologically important estuary on the Pacific coast. These waterways also supply a significant fraction of California's water supply. Coal dust falling

[40] *See e.g.,* Daily Oil Trains Could Threaten Lives in the Bay Area, SF Chronicle, August 10, 2015, http://blog.sfgate.com/hottopics/2015/08/10/daily-oil-trains-could-threaten-lives-in-the-bay-area/.

[41] Crude Injustice on the Rails, Communities for a Better Environment, June 30, 2015, http://www.cbecal.org/media/cbe-updates/crude-injustice-on-the-rails-report-calls-out-environmental-racism/.

[42] 7/16/15 BOD, Table 9-1.

[43] Tovah R. Trimming, Derailing Powder River Basin Coal Exports: Legal Mechanisms to Regulate Fugitive Coal Dust from Rail Transportation, Golden Gate University Environmental Law Journal, v. 6, issue 2, June 21, 2013, http://digitalcommons.law.ggu.edu/cgi/viewcontent.cgi?article=1104&context=gguelj. *See also* memo to CCIG from Venable, LLP, September 8, 2015 (arguing City of Oakland cannot regulate rail.)

along the tracks in these areas would be blown into or washed into the waterways by rainfall runoff. Second, there is a long history of coal dust creating nuisance conditions for those living and working adjacent to the tracks.

Uncovered Rail Cars

Uncovered rail cars carrying coal emit significant amounts of coal dust.[44] Most coal dust is emitted from the top of the rail car, but some is also emitted from the bottom. The movement of cars during transit creates vibrations that break larger pieces of coal into smaller particles, creating a continuous source of dust as the trains travel to their destination. Dusting also occurs on the empty return trip as leftover coal particles are blown out of the cars. This dust would be deposited along and adjacent to the rail lines between Utah and the Terminal as well as at the Terminal while waiting to be unloaded. Coal dust losses vary with wind speed, train speed, time of year, load shape, and topping agents.

While the 7/16/15 BOD asserts that covered rail cars will be used, this claim is unenforceable, the applicant has failed to identify a source of coal car covers, and there is no history of their use for transporting coal due to added cost and safety issues, discussed elsewhere. The September 2015 HDR report asserts that coal dust can be reduced by at least 85% using topping agents (surfactants) and load profiling/packing. However, these have not been proposed by the applicant and are also unenforceable.

A representative of BNSF testified before the Rail Energy Transportation Advisory Committee (RETAC) that coal loss from an uncovered bottom unloading car during a typical 400 mile trip is on average 45 lb from the bottom and 600 lb from the top, for a total of 645 lb per car.[45] Elsewhere, BNSF has reported that "The amount of coal dust that escapes from PRB coal trains is surprisingly large…BNSF has done studies indicating that from 500 lbs to a ton of coal can escape from a single loaded coal car. Other reports have indicated that as much as 3% of the coal loaded into a coal car can be lost in transit." BNSF has pulled this information from its website, but it was captured and duplicated elsewhere.[46] Norfolk Southern reported similar losses, up to 1,200 lb/car and typically 400 to 800 lb/car along a 500 mile rail corridor hauling a bituminous coals similar to the Utah coals.[47]

The rail distance from central Utah where the coal would be mined to the Terminal is about 750 miles. Assuming three 104-car unit trains per day, up to 68,300 tons/yr of coal dust

[44] See dust from typical coal unit train at: https://www.youtube.com/watch?v=RzD2olpaooQ.

[45] Minutes, Rail Energy Transportation Advisory Committee, September 10, 2009, http://www.scribd.com/doc/129350651/Surface-TransMinutes-9-10-09-1.

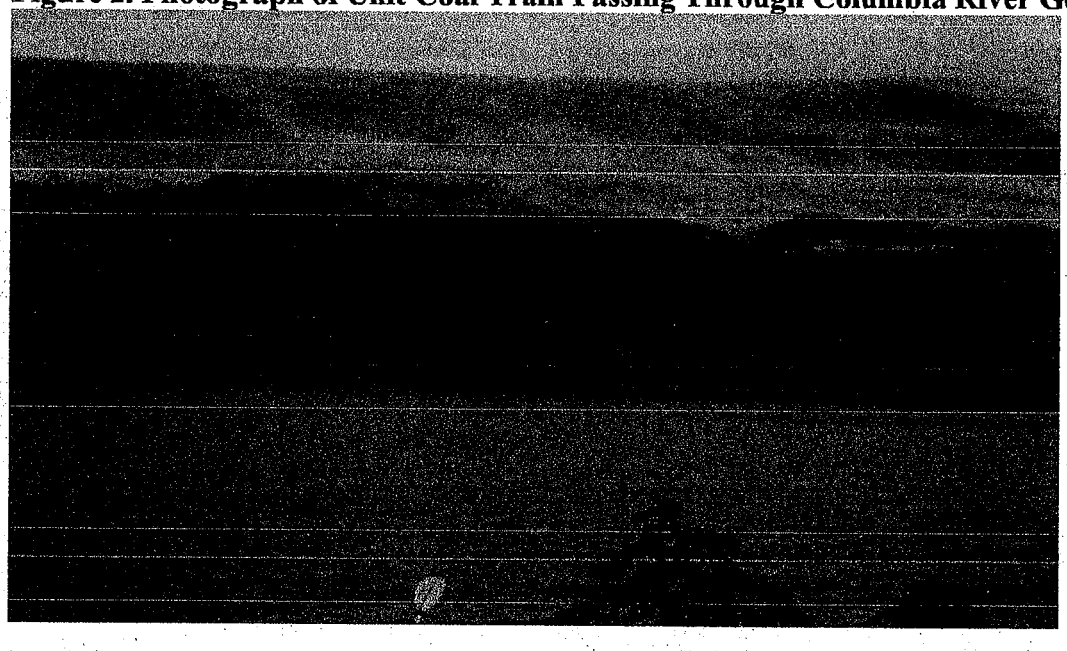
[46] Cassandra Profita, How Much Coal Dust Will There Really Be?, July 30, 2012, http://www.opb.org/news/blog/ecotrope/10753/.

[47] Edward M. Calvin, G.D. Emmitt, and Jerome E. Williams, A Rail Emission Study: Fugitive Coal Dust Assessment and Mitigation, http://www.powerpastcoal.org/wp-content/uploads/2011/08/A-RAIL-EMISSION-STUDY-FUGITIVE-COAL-DUST-ASSESSMENT-AND-MITIGATION.pdf.

could be emitted from trains servicing the Terminal.[48] Assuming entry at Donner Pass, the shortest route, at least 200 miles of this route are in California. Thus, about 27% of the coal dust or about 18,200 tons/yr could be released within the state. While much of this dust would be deposited near the tracks, which are adjacent to rivers and estuaries, a significant amount of the coal dust would become air borne and cause significant downwind air quality, public health, and ecosystem impacts.[49]

Some have claimed—including the recent Sept. 2015 HDR report submitted by CCIG at p. 5—that most of this coal dust is deposited close to the mine. However, numerous You Tube and other videos[50] and Seattle Times photos in the Columbia River Gorge debunk this claim. See Figure 2. Dust is generated throughout the trip by movement of the cars during transit, particularly over the mountainous terrain between the mines in central Utah and Oakland, e.g., they must cross the Sierra Nevada mountains, which will require numerous speed changes as the trains negotiate challenging mountain passes, steep grades, and sharp curves. The references to behavior of wind blown dust from stationary storage piles in the Sept. 2015 HDR report at 5 are irrelevant to train travel. The problems caused by released coal dust are detailed below.

Figure 2. Photograph of Unit Coal Train Passing Through Columbia River Gorge.



First, railroads in California (and elsewhere, see Figure 2) parallel or cross many rivers and estuaries (Figure 1), which contain sensitive species and are lined with riparian corridors.

[48] Coal dust: Assuming 645 lb/car x (750 mi/400 mi) x 104 cars/train x 3 trains/day x 362 day/yr/2000 lb/ton = **68,296 lbs.**

[49] See reviews in: Dan Ferber, Research Finds Additional Harm from Coal Dust Exposure, February 20, 2013, http://midwestenergynews.com/2013/02/20/research-finds-additional-harm-from-coal-dust-exposure/ and Eric de Place, How Coal Affects Water Quality: State of the Science, March 20, 2013, http://daily.sightline.org/2013/03/20/how-unburnt-coal-affects-water-the-state-of-the-science/.

[50] See the videos at Coal Dust: Norfolk Southern's Most Insidious Gift to Its Own Hometown, http://coaldustnorfolk.com/NSCoalHandling.html.

Thus, some of the 68,300 tons/yr of coal dust released during transit from Utah could end up in riparian zones and waterways, resulting in significant ecological impacts.

Coal dust that reaches waters adjacent to rail lines – such as the American, Feather, Yuba, and Sacramento Rivers and the Sacramento-San Joaquin Delta -- will have adverse physical effects on exposed organisms including abrasion, smothering, reduction in availability of light and clogging of respiratory and feeding organs.[51] Young salmon and trout exposed to coal washings, for example, experienced 100% mortality after 0.5 to 2.5 hrs exposure. The dead fish had heavy secretions of mucus from the skin and gills, to which particles of coal adhered.[52] In another study, exposure of juvenile chinook salmon to coal dust resulted in metabolic activation of genes that convert PAHs to carcinogenic and mutagenic metabolites. Coal dust leachates also reduce the growth rate of trout, cause oocyte atresia and reduce ovarian growth in crayfish, and promote DNA adduct formation and hepatocellular carcinoma in fish.[53]

Second, coal dust destabilizes rail bed ballast, which underlies and stabilizes tracks and has led to accidents, high cleanup costs, and litigation to require shippers of coal from the Powder River Basin to use surfactants to reduce coal dust. BNSF spent more than $100 million cleaning and replacing track ballast in Wyoming in 2009 and 2010. These surfactant rules do not apply to coal shipped from Utah. Further, the dust also deposits on the tracks, causing derailments.[54]

Third, coal dust, blown from unit trains, the Terminal, and staged rail cars at the Terminal, can have many impacts on humans, animals, and plants along the rail lines and in adjacent communities. The coal dust blown or otherwise emitted from these sources consists mainly of fine black particles that are carried by winds onto properties adjoining the Terminal and rail tracks. The most intense dusting events occur when trains travelling in opposite directions meet at normal track speeds,[55] which will be common occurrences due to operation of the Terminal. In addition, tunnels, trestles, and open field often cause emissions due to lateral wind stresses.[56]

---

[51] Michael J. Ahrens and Donald J. Morrisey, Biological Effects of Unburnt Coal in the Marine Environment, Oceanography and Marine Biology: An Annual Review, v. 43, pp. 69-122, 2005.

[52] C.F. Pautzke, Studies on the Effect of Coal Washings on Steelhead and Cutthroat Trout, Transactions of the American Fisheries Society, v. 67, pp. 232-233, 1937.

[53] P.M. Campbell and R.H. Devlin, Increased CYP1A1 and Ribosomal Protein L5 Gene Expression in a Teleost: The Response of Juvenile Chinook Salmon to Coal Dust Exposure, Aquatic Toxicology, v. 38, pp. 1-15, 1997.

[54] See, for example:
http://www.stb.dot.gov/decisions/readingroom.nsf/fc695db5bc7ebe2c852572b80040c45f/3bdd891ff0ccc1fb8525794f006db7c9?OpenDocument
and http://www.stb.dot.gov/decisions/ReadingRoom.nsf/WEBUNID/79B5382AE20F7930852578480053111F?OpenDocument.

[55] Simpson Weather Associates, Inc., Norfolk Southern Rail Emission Study, December 30, 1993, http://leg2.state.va.us/dls/h&sdocs.nsf/By+Year/SD581994/$file/SD58_1994.pdf. See also video at: https://www.youtube.com/watch?v=qVUJcmxZ7BE.

[56] Report of the Joint Subcommittee Studying Ways to Reduce Emissions from Coal-Carrying Railroad Cars, Senate Document No. 23, Commonwealth of Virginia, 1997.

Farmers, landowners, and communities along the rail lines would have to deal with nuisance black grit covering their crops, lawns, homes, vehicles, and more seriously, increasing particulate matter in the ambient air, which would result in significant public health issues.[57] See coal dust videos.[58] Testimony before the Joint Subcommittee Studying Ways to Reduce Emissions from Coal-Carrying Railroad Cars" was summarized as follows:[59]

> "Homes and cars need repeated washing, windows and doors must stay closed and outdoor activity is curtailed because of the coal dust. Patio furniture and gardens are said to glisten with coal dust.
>
> A so-called "blowout," typically occurring during extreme meteorological conditions, can result in 40-foot-high clouds of dust billowing upward. Particularly bad episodes have reportedly forced some vehicles traveling along Route 29 to turn on headlights or pull off of the road. Homeowners have made claims with NS in exceptional cases to pay for the cleaning of their homes…[high winds are common in the Bay Area].
>
> For those so affected, the constant presence of coal dust was characterized as a burden that diminishes their quality of life. The dust leaves a greasy black film wherever it lands, settling on windowsills and finding its way through cracks and crevices. Although documentation has not been available, some citizens exposed to emissions expressed concerns about the potentially harmful health effects of coal dust exposure."

Similar complaints have been reported by communities in the Bay Area from coal trains that currently pass through Richmond on their way to the Levin Terminal. "In Parchester Village, a largely black and Latino neighborhood in northwestern Richmond, residents say coal dust blows off the open mounds, covering the grass and coating their screen doors…It's everywhere, he says. If your truck sits here for two, three days without moving you can write your name on the front."[60]

---

http://leg2.state.va.us/dls/h&sdocs.nsf/fc86c2b17a1cf388852570f9006f1299/0bef1dac9cc18b48852564420068dc18/$FILE/SD23_1997.pdf.

[57] Paul R. Epstein and others, Full Cost Accounting for the Life Cycle of Coal, Annals of the New York Academy of Sciences, v. 1219, 2011, p. 84.

[58] See videos at: https://www.youtube.com/watch?v=o4v5w-TuhWM; https://www.youtube.com/watch?v=6WdsrkyaGZI; https://www.youtube.com/watch?v=tFlXHT6KCRM; https://www.youtube.com/watch?v=gjhnhZ0mFb4; https://www.youtube.com/watch?v=LwuBhcffcoo.

[59] Report of the Joint Subcommittee Studying Ways to Reduce Emissions from Coal-Carrying Railroad Cars, to the Governor and the General Assembly of Virginia, Senate Document No. 58, Commonwealth of Virginia, Richmond, 1995, http://leg2.state.va.us/dls/h&sdocs.nsf/By+Year/SD581994/$file/SD58_1994.pdf.

[60] Julie Small, Coal Train Dust Worries Richmond Residents, KQED, June 22, 2015, http://ww2.kqed.org/science/2015/06/22/coal-train-dust-worries-richmond-residents/.

"Coal dust" is an umbrella term that includes the full range of particle classifications based on size, from granules to very small particles. Known health effects from coal dust exposure include skin damage, circulatory system problems, and increased risk of developing cancer. In one study, coal dust was associated with respiratory morbidity in school children. A cross section study found that respiratory symptoms were significantly more common in children in the areas exposed to coal dust than the control areas. Elevated symptoms included wheezing, excess cough, and school absences for respiratory symptoms.[61] In another study, proximity to coal mining activities was associated with worse adjusted health status and with higher rates of cardiopulmonary disease, chronic obstructive pulmonary disease, hypertension, lung disease and kidney disease.[62]

Coal dust includes fine particles, both PM10 and PM2.5.[63] These would be emitted from the coal trains along their entire route, from Utah to the Terminal in Oakland as well as from the Terminal itself. Coal dust would be released from staged rail cars waiting to be unloaded,[64] rail car unloading, coal conveying, blending, storing, and transferring coal to ships.

These pollutants are directly linked to health problems because they can travel deep into the lungs, some reaching the bloodstream. They thus affect both the lungs and heart. Numerous scientific studies have linked particle pollution to a variety of health problems, including premature death in people with pre-existing lung and heart disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms, such as irritation of airways, coughing, or difficulty breathing.[65] The Utah coals that will be imported have elevated levels of silica,[66] which is more toxic than coal and is regulated to 1/20th the level of coal dust in occupational settings. Exposure to coal dust with elevated silica can result in silicosis, pulmonary tuberculosis, and lung cancer.[67]

Coal dust from uncovered rail cars also can result in other impacts, including soil contamination, visibility impairment, environmental damage, and aesthetic damage. A study adjacent to a coal terminal in Norfolk, Virginia found elevated arsenic associated with coal

---

[61] Bernard Brabin and others, Respiratory Morbidity in Merseyside Schoolchildren Exposed to Coal Dust and Air Pollution, Archives of Disease in Childhood, v. 70, pp. 305-312, 1994.

[62] M. Hendryx and M.M. Ahern, Relations Between Health Indicators and Residential Proximity to Coal Mining in West Virginia, American Journal of Public Health, v. 98, pp. 669-671, 2008.

[63] Daniel Jaffe and others, Diesel Particulate Matter and Coal Dust from Trains in the Columbia River Gorge, Washington State, USA, Accepted for publication in Atmospheric Pollution Research, April 23, 2015.

[64] Phyllis Fox, Fugitive Particulate Matter Emissions from Coal Train Staging at the Proposed Coyote Island Terminal, Final Report Prepared for Sierra Club, July 19, 2013.

[65] U. S. Environmental Protection Agency. Particulate Matter, Health, http://www.epa.gov/pm/health.html.

[66] Silica levels range from 58.4% to 61.4% at four Bowie mines that may supply the Terminal. Sept. 2015 HDR Report, p. 13, http://bowieresources.com/skyline/.

[67] Jay Colinet, Health Effects of Overexposure to Respirable Silica Dust, Silica Dust Control Workshop, September 28, 201, http://www.cdc.gov/niosh/mining/UserFiles/workshops/silicaMNM2010/1-Colinet-HealthEffects.pdf.

particles, 2 to 20 times higher than upper crustal levels and 5 times higher than background soil.[68]

The Sept. 2015 HDR report at 14 argues that trace metals in Utah coal are not a concern. However, they base their argument on EPA residential soil screening levels, rather than California risk-based screening levels.[69] The California levels indicate that arsenic levels in Utah coal (1 – 8 mg/kg) are 14 to 114 times higher than the residential soil-screening level (0.07 mg/kg) and are also significantly higher than the commercial/industrial level (0.24 mg/kg).

Coal particles can be carried long distances, settling in lakes and streams, where they can increase acidity and change nutrient balances; deplete soil nutrients; damage sensitive forests and farm crops; and affect the diversity of ecosystems. A study in Oregon, for example, correlated coal dust deposition with significantly higher soil temperatures, decreased soil pH, increased moisture-holding properties, and elevated heavy metal concentrations. These changes were possibly responsible for the lower frequencies and diversity of lichen species in the impacted area.[70] Others have noted that coal dust significantly reduced carbon dioxide exchange of upper and lower leaf surfaces.

The Sept. 2015 HDR study at 13-15 attempts to set aside any worry about coal dust emissions from coal transport as "operations at OBOT will require an air permit through BAAQMD, one of the most stringent regulatory agencies in the U.S...." However, this is incorrect. The BAAQMD has no jurisdiction over emissions from rail transport or mobile sources in general. None of the permits required for the Terminal will limit coal dust emissions from trains. This is an unregulated source.

Covered Rail Cars

While covered rail cars sound like a good idea as they would prevent the release of coal dust, they pose a different set of issues. First, who would own or lease them, the railroads, the coal producers, or the company importing coal from abroad? The Terminal would have no control over whether the trains arrive covered or uncovered. Thus, the claim in the 7/16/15 BOD that the rail cars will be equipped with "removable, fiberglass covers"[71] is meaningless. Further, while the proposed covers could control the dust from the top of the train, they would not control dust from the bottom of the train, which comprises 7% of the total. Further, covered coal cars would create other issues.

---

[68] William J. Bounds and Karen H. Johanneson, Arsenic Addition to Soils from Airborne Coal Dust Originating at a Major Coal Shipping Terminal, Water Air Soil Pollution, 185:195-207, 2007.

[69] Office of Environmental Health Hazard Assessment and California Environmental Protection Agency, Human-Exposure-Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil, January 2005, Table 5, http://www.oehha.ca.gov/risk/pdf/screenreport010405.pdf.

[70] Sherry Spencer, Effects of coal dust on species composition of mosses and lichens in an arid environment. Journal of Arid Environments, v. 49, issue 4, pp. 843-853, 2001. Abstract available at: http://www.sciencedirect.com/science/article/pii/S014019630190816X.

[71] 7/16/15 BOD, Table 9-1.

First, coal is a highly combustible material, characterized in the 7/16/15 BOD as "very dusty, exhibits spontaneous combustion behavior, potentially explosive."[72] Containing this material in a limited space, beneath a cover, could facilitate spontaneous combustion, by trapping heat in the car. This could result in the delivery of rail cars at the Terminal partially on fire and emitting toxic gases.[73] In fact, it is well known that covered cars that are not properly ventilated are a safety hazard because they increase the risk of the coal spontaneously combusting.[74] Ventilated tops would reduce this risk, but shippers claim they are too expensive. Further, ventilated tops would allow the emission of some coal dust.

The proposal here is for unventilated fiberglass covers, which, if used, present significant safety and public health issues for those along the rail route and near the Terminal in West Oakland. Smoldering rail cars moving through the densely populated Bay Area and queued up at the Terminal present a significant public health risk to nearby businesses and residents as they would release toxic air pollutants.

Second, fiberglass covers can break, bend, blow off, and fall off. Given that train lines pass through residential and commercial areas, such as Fourth Street in Berkeley, these covers could cause serious damage to adjacent properties, pedestrians, and motor vehicles.[75]

Traffic Impacts at Train Crossings

Unit coal trains will adversely impact traffic at at-grade rail crossings, or places where the railroad tracks cross a road.[76] There are 55 at-grade rail crossings between Benicia and the proposed Terminal. A 104-car unit train is about 1.3 miles long[77] and would travel at a rate of about 10 mi/hr in urban areas. Thus, it would take a unit train 9 minutes[78] to pass any given point. Further, a 1.3 mile long train would block multiple rail crossings simultaneously. This would occur up to six times per day for 362 days out of each year as two to three unit trains filled with coal and two to three empty unit trains would pass through each of these crossings. Thus, each crossing would be blocked for up to an hour, 362 days of the year.

---

[72] 7/16/15 BOD, Table 5-1.

[73] Coal's Spontaneous Combustion Problem, Sightline Daily, April 11, 2012, http://daily.sightline.org/2012/04/11/coals-spontaneous-combustion-problem/.

[74] Nick Gier, Coal Trains Threaten Environment and Public Health, http://www.sustainablepalouse.org/docs/CoalTrains2923.pdf.

[75] See, for example, Metal Covers Blow off Freight Train, Lompoc Record, July 2, 2006, http://lompocrecord.com/news/local/metal-covers-blown-off-freight-train/article_3ddb578f-5262-595f-8dd5-f439e36d61ef.html.

[76] See, for example, "The bane of all drivers in Seattle's SODO neighborhood: train crossings", http://www.seattlepi.com/local/transportation/article/Getting-There-How-long-can-trains-legally-block-1403713.php.

[77] The proposed trains would have 104 cars. This would require up to 5 locomotives. A locomotive is about 80 ft long and a typical hopper car about 60 ft long. Thus, a 104-car unit train would be: (5x80) + (104x60) = 6,640 ft or about 1.3 miles long, ignoring the gaps between cars.

[78] Transit time = 1.3 miles/10 mi/hr x 60 min/hr + 1 min (open and close gates) = 8.8 minutes.

This long transit time blocking numerous sequential rail crossings simultaneously would create significant traffic jams during rush hours. It would also delay emergency medical response times, significantly impeding emergency vehicles, such as ambulances and fire trucks, creating public emergencies. Finally, it would increase the probability of train-vehicle collisions at grade crossings.

Air Emissions

The unit trains carrying coal to the Terminal will be powered by up to five diesel-fueled locomotives that emit diesel particulate matter (DPM) as well as criteria air pollutants (NOx, SO2, PM10, PM2.5, CO) along rail lines and while idling at the Terminal.[79] Further, ships and supporting tugs that export the coal, and diesel-fired equipment within the Terminal all emit DPM as well as criteria air pollutants. As coal trains weigh much more than other types of trains carrying different products, emissions from exporting coal would be proportionally higher from coal trains than from other types of trains because more locomotives would be needed to carry the extra weight. As noted elsewhere in this report, the unit trains proposed to call at the Terminal loaded with coal weigh much more than other types of trains using these rail lines.

Increased emissions of diesel particulate matter would likely result in significant health impacts in exposed populations along the rail lines and in the vicinity of the Terminal. Exposure to DPM has been linked with acute short-term symptoms such as headache, dizziness, light-headedness, nausea, coughing, difficult or labored breathing, tightness of chest, and irritation of the eyes, nose and throat. Long-term exposures can result in cardiovascular disease, cardiopulmonary disease, increased probability of heart attacks, lung cancer, worsening of asthma, and infant mortality. Children, teens and the elderly are especially vulnerable.[80]

Health risk assessments of rail terminals and ports have found significant cancer risks from DPM up to 2 miles from the facilities. A health risk assessment prepared by the Spokane Regional Clean Air Agency found significant cancer risk (>10 cases in one million exposed) from DPM up to 2 miles from the BNSF Railyard.[81] A health risk assessment of the BNSF Stockton Railyard reported cancer risks from DPM at 100 in a million within 300 yards of the railyard, at 50 in a million within one half mile, at 25 to 50 in a million within 1 mile, and at 10 in a million at up to 2 miles from the railyard.[82] Similar cancer risk levels have been reported at railyards and terminals throughout the state[83] and would be expected in the vicinity of the Terminal, resulting in significant cancer risks in West Oakland.

---

[79] Jaffe et al. 2015; Daniel A. Jaffe et al., Diesel Particulate Matter Emission Factors and Air Quality Implications from In-Service Rail in Washington State, USA, Atmospheric Pollution Research, v. 5, pp. 344-351, 2014.

[80] OEHHA, Health Effects of Diesel Exhaust, http://oehha.ca.gov/public_info/facts/pdf/diesel4-02.pdf.

[81] Spokane Regional Clean Air Agency, Health Risk Study for the Burlington Northern/Santa Fe Railroad Spokane Railyard, September 6, 2011, https://www.spokanecleanair.org/documents/air%20quality%20monitoring%20reports%20studies/BNSF%20Spokane%20Railyard%20Health%20Study.pdf.

[82] California Air Resources Board (CARB), Health Risk Assessment for BNSF Railway Stockton Railyard, November 19, 2007, http://www.arb.ca.gov/railyard/hra/bnsf_stockton_hra.pdf.

[83] See, e.g., Port of Long Beach Pier S Redevelopment Project (http://www.polb.com/civica/filebank/blobdload.asp?BlobID=8735); Port of Los Angeles San Pedro Waterfront

Noise

The equipment in the Terminal – ship loaders, switching locomotives, stackers, conveyors, reclaimers, railcar dumpers, ship loaders, dozers, etc. -- are major sources of noise that will be audible in adjacent West Oakland communities and will cause significant noise and vibration impacts.

Further, the unit trains that service the Terminal are major sources of noise that will adversely affect communities along the rail lines and adjacent to the Terminal. The noise from trains is legendary. In Berkeley where I live, train noise can be heard throughout the city, from Fourth Street near the tracks into the Berkeley Hills, 5 miles distant.

While there are many sources of noise from trains (high-pitch screeching, rumbling, idling engines, moving cars, etc.), horn sounding is the most significant. Federal rules governing the blowing of locomotive engine horns require that engineers of all trains sound horns for at least 15-20 seconds at 96-110 decibels (dB) at all public crossings. Decibels in the range of 80-105 are extremely loud, whereas those above 105 are dangerous. Decibels are logarithmic, meaning that 100 decibels is ten times as loud as 90, 110 decibels is ten times as loud as 100, and so on.

Trains servicing the Terminal will pass through 55 at-grade public crossings within the Bay Area. Round trip travel of up to three unit trains per day through 55 at-grade crossing will result in about 2 hours of horn noise[84]. Thus, every day that the Terminal operates, residents within communities along the rail line will be exposed to nearly 2 hours of extremely loud train horns.[85]

While impacts to quality of life from repeated loud noise are self-evident, chronic noise exposure has been proven to cause adverse health effects, including cardiovascular disease; cognitive impairment in children; sleep disturbance and resultant fatigue; hypertension; arrhythmia; increased rate of accidents and injuries; and exacerbation of mental health disorders such as depression, stress and anxiety, and psychosis.[86]

Secondary effects from sleep disturbance can also occur including fatigue, depressed mood and well-being, and decreased performance and alertness. Cardiovascular effects, independent of sleep disturbance, can also occur with acute exposure to noise mostly due to elevated blood pressures and levels of stress-induced hormones. In addition, noise can exacerbate

---

Project (http://www.portoflosangeles.org/EIR/SPWaterfront/DEIR/AppxD3_HRA.pdf); Four Commerce Railyards (http://www.arb.ca.gov/railyard/hra/4com_hra.pdf); BNSF Watson (http://www.arb.ca.gov/railyard/hra/bnsf_watson_hra.pdf).

[84] Daily duration of train noise: 20-seconds/sounding x 55 at-grade crossings x 6 train trips/day = 6,600 seconds= 1.83 hours.

[85] http://www.coaltrainfacts.org/key-facts#trains.

[86] http://www.coaltrainfacts.org/key-facts#sthash.X5aI5sYT.dpuf.

stress and anxiety and impair task performance. The National Institute for Occupational Safety and Health recommends less than 15 minutes of exposure per day to noises over 100 dB.[87]

Visual Impacts

The Terminal, located at the foot of the new Bay Bridge and adjacent to communities in West Oakland, will not be fully enclosed based on currently available design drawings. Thus, the various components will be visible from West Oakland, local freeways, and the Bay Bridge. These components include the Commodity A storage buildings, enclosures that are about 100 feet high and 203 feet in diameter[88] and the Commodity B dome which is 142 feet high and 167 feet in diameter.[89] Also visible will be thousands of feet of conveyors and the ship loading apparatus. These massive structures will block views of the Bay and attract attention of passing motorists, which could potentially lead to accidents.

CONCLUSION

In summary, many adverse impacts would result if coal were imported at the proposed Terminal, rather than other materials. These include:

- High water usage to control Terminal dust, especially significant in light of the California drought and further anticipated impacts from climate change
- Adverse public health impacts from coal dust and diesel particulate matter emitted by unit coal trains and the facility,
- Increased potential of train accidents that could adversely impact the state's water supply,
- Adverse aquatic and riparian ecosystem impacts adjacent to the rail lines,
- Adverse noise and vibration impacts along the rail lines and in West Oakland near the Terminal, and
- Adverse traffic impacts, including delayed response time of emergency vehicles.

None of these impacts were anticipated in the CEQA review of this Project. Further, none of the mitigation measures listed in the Sept. 8, 2015 Stice & Block Letter address these impacts. None of these impacts would be mitigated by any of the permits that must be obtained to operate the Terminal.

[87] http://www.coaltrainfacts.org/key-facts#trains.

[88] Conceptual Drawing BMH-142.

[89] Conceptual Drawing BMH-150.

CNE USA

CASEFORNATURALENERGY.COM

INDEX

CNE LETTER TO SENATE TRANSPORTATION AND HOUSING COMMITTEE AND THE SENATE COMMITTEE ON NATURAL RESOURCES.

TLS FACT SHEET

CITY OF OAKLAND NOTICE OF PUBLIC HEARING

LONI HANCOCK QUESTIONAIRE TO OAKLAND RESIDENTS AND FOIA RESPONSE

MR. JERRY BRIDGES BIO

DR. BURNS SUPPORT LETTER AND OP-ED POST AND BIO

TLS REPORT "AIR QUALITY AND HUMAN HEALTH AND SAFETY ASSESSMENT"

OEM'S REPORT "LIVING NEAR OPENCAST MININIG SITES AND CHILDRENS RESPIRATORY HEALTH."

OBOT LETTER TO CLAUDIA CAPPIO THE OAKLAND CITY ADMINISTRATOR ON "REPONSES AND INFORMATION FOR CITY FOLLOW-UP QUESTONS TO SEPTEMBER 21 INFORMATIONAL HEARING"

KEYSER MARSTON ASSOCIATES MEMORANDUM "PROPERTY TAX AND ECONOMIC IMPACTS- OAKLAND ARMY BASE"

TLS POWERPOINT PRESENTATION

LACHLAN MARKAY ARTICLE "FOREIGN FIRM FUNDING U.S. GREEN GROUPS TIED TO STATE-OWNED RUSSIAN OIL COMPANY"

NYT ARTICLE BY JAD MOUAWAD "A CRUSADER IN THE COAL MINE, TAKING ON PRESIDENT OBAMA"

MR. WILLIAM CLAYTORS BAY CROSSING ARTICLE "COAL IS A FOUR LETTER WORD" (PRO-COAL IN AMERICA)

MS. SEJAL CHOCKSI-CHUGHS BAY CROSSING ARTICLE "CLEAN COAL IS A DIRTY LIE" (AGAINST COAL)

UNION ENDORSEMENTS AND LETTERS TO OAKLAND MAYOR AND CITY COUNCIL

CNE USA
CASEFORNATURALENERGY.COM

American Patriots Fighting
for Our Constitutional
Rights, Energy, and Jobs.

CNE USA
P.O. BOX 31387
Oakland, Ca 94612

Senate committee on Natural Resources

State capitol, room 5046

Sacramento, CA 95814

RE: Hancock SB 1277, SB 1278, SB 1279 SB 1280

Senator Loni Hancock's Senate bills 1277,1278,1279 and 1280 seek to ban the export of coal through the commodities terminal being built by Terminal Logistics Solution (TLS) at the old Oakland Amy base. It's very disingenuous for Loni Hancock to author these bills using the very narrow lens of flawed data Which she admits was only obtained from reading a newspaper) and propaganda obviously provided to her by special interest environmental groups such as the Sierra Club. Earlier this year, Ms. Hancock sent her entire constituency (of which I am a member) a highly-biased, taxpayer-funded, anti-TLS survey to pad the support for the bills noted above. When asked, via FOIA request, to provide her sources for this inflammatory survey, Ms. Hancock refused to respond.

Ms. Hancock's reckless and arrogant behavior shows the total disregard she has for the economic prosperity of the citizens of Oakland as well as maximizing human well-being to billions of people around the world. She chooses to go "all in" with the wishes of the Sierra Club (propped up by Vladimir Putin and Russian money to stop the American export of coal)

Her arrogance puts at stake hundreds of high paying blue collar jobs in Oakland and the potential well-being of human lives in China and India could be adversely affected by this abrupt termination.

I'm particularly outraged at the false "health and safety implications" articles about TLS that seemingly can't get enough play in the local media. If members of the media would do their homework on both sides of the issue they would quickly learn of the unprecedented environmentally-friendly standards Mr. Bridges and his team have planned for TLS. As Mr. Bridges has told the Mayor of Oakland, the Oakland City Council and anyone who will listen:

- All commodities will be transported from their point of origin to the TLS Terminal in specially designed covered rail cars....the safest and most environmentally-friendly that industry has to offer.

- All commodities will be discharged from the covered rail cars into enclosed underground units with dust control and collection technology.

- Once commodities arrive at the terminal, they will be moved in enclosed conveyance systems with the latest in dust control and collection technology.

- All commodities will be stored within unique, enclosed dome storage units that will also be outfitted with the latest dust control and collection technology.

- All commodities will be loaded onto the vessel using enclosed state-of-the-art ship loaders with dust and collection control technology

- The TLS Terminal will install the best available air quality monitors and a methodology to suspend operations in real-time should a problem arise. TLS will also install, and closely monitor, other environmental monitoring devices and will make the results of these monitors available to the public.

- Finally, the TLS Terminal will meet and/or exceed all California Environmental Quality Act (CEQ) requirements.

So, even with all of the environmentally-friendly and safety precautions for the operation of the TLS Terminal, Ms. Hancock has incorrectly stated in SB 1277 that: ***"assuming that 10.5 million tons of coal is shipped annually, as much as 646 tons per year of fugitive coal dust may be generated by the movement of coal through a port facility."*** Where and from whom did she get these facts? She very clearly didn't apply the TLS Terminal's environmental and safety precautions into consideration before presenting these fictitious "facts" to the residents of California. Using Ms. Hancock's math (which does not reflect the actual movement of projected coal for the site)...the precautions to be taken by the TLS facility the City of Oakland and the State of California will be directly responsible for 646 tons of fugitive coal dust NOT making it in to the atmosphere each year. Ladies and gentlemen....this is how you lower the world's carbon footprint.

The TLS Terminal has clearly established the standard for terminal environmental and safety stewardship by zeroing out emissions from the transportation and shipping of coal. We have available technologies to significantly reduce the impact of fossil fuels in the world by following the TLS example and exceeding industry standards. It would have made much more sense (common sense) for Ms. Hancock to propose a Senate Bill to have other California terminals exporting coal adhere to the terminal standards established by TLS.

I firmly believe that California citizens should be properly educated when it comes to the future economic development of our state, counties and cities. If these projects are not built in the State of California they'll go elsewhere on the west coast and most likely to Mexican Mega ports. Given the recent exodus of companies from California we should be welcoming projects such as TLS with open arms. It is beyond perplexing as to why Ms. Hancock is so quick to throw away the obvious economic benefits TLS will bring to the City of Oakland and her citizens that are in desperate need of good-paying blue collar jobs? The TLS project will:

- Promote the economic development of Oakland by investing over $250 Million to generate a construction payroll of $76 Million and an annual payroll of $120M for the proposed 66 year life of the lease.

- Revitalize the aging infrastructure of the former Oakland Army Base to make it prosperous, once again, for the citizens of Oakland.

- Provide union jobs for terminal, stevedoring and maritime services.

- Be a committed partner of the Oakland Community and invest in the youth of Oakland.

- Provide much needed leadership to other businesses wanting to move or start up their enterprises in the City of Oakland.

In addition to benefitting the men and women of Oakland, the TLS Project will provide a much needed gateway to the world for neighboring agricultural and mineral producing states and significantly benefit the supply chains that service their products. The railroad and trucking industries, shipping lines, farmers and ranchers, miners, subcontractors, suppliers and the list goes on and on. The positive employment and economic impact TLS will have on the economic well-being of Oakland, California, our neighboring states and the respective supply chains providing supporting roles is....frankly staggering.

Instead of trying to kill initiatives such as the TLS Project, our elected officials should be in the business of correctly educating the public and promoting the use of fossil fuels which are found in great abundance in this wonderful nation of ours. Why? Because we have the ability to improve upon our lives, and the lives of 7 billion people in the world by providing the world's cleanest, lowest-sulfur coal so that the environmental effects may be mitigated. The amount of energy needed to support 7 billion people is not coming from renewable sources such as solar or wind any time soon.

It would be extremely short-sighted on the part of the California State Senate to obstruct access to the world's cleanest coal, which, in turn, forces countries such as China and India to use local, high-sulphur dirty coal because that is all they can get. Clean coal handling and exporting in America means cleaner coal for other parts of the world, more American jobs and ultimately reduced emissions worldwide.

So the question is: shall we allow our world neighbors access to low-polluting American coal or will we force them to burn dirty, high-sulfur coal? We can't change the fact that coal will be burned but we can significantly impact the type of coal they use. Following the Paris 2015 Climate Change Conference, China has shown a propensity to do all that was in their power to lower their carbon footprint without damaging their infrastructure or the citizens of their lovely county. When they found that burning cleaner coal would help to clear up their skies they decided that even though it would cost more money they were committed to burning the cleanest available coal product...like the clean coal that would be shipping out of the TLS Terminal in Oakland.

In conclusion, saying no to the TLS facility and supporting Loni Hancock's Bills SB 1277, 1278, 1279, 1280 would actually be hurting the environment in the long run as well as the citizens of Oakland. Lets make the right choice for the planet.

Nicole A. Falche

TERMINAL LOGISTICS SOLUTIONS
An Oakland Business Seeking to Feed, Clean, and Power the World

FACT OR MYTH?

BACKGROUND:

- Terminal Logistics Solutions (TLS) is seeking to build a "multi-commodity" marine terminal on the former Oakland Army Base to export raw materials like iron ore, pot ash, borax, and coal. They will also export grains like corn, soybeans, and other grains shipped in bulk.

- The proposed terminal will meet or exceed all Federal and State requirements for environmental protection. (Environmental Protection Agency (EPA) and California Environmental Quality Act (CEQA).

- The California Sierra Club has launched an opposition campaign to this project claiming that the export of COAL is harmful and threatens the health and safety of the local West Oakland community. The export of coal is viewed by the Sierra Club as working against efforts to develop global renewable energy sources.

Here are a few of the myths, misconceptions, and untruths being promoted by project opponents about this important project that need to be corrected with ***FACTS.***

MYTH:

The Sierra Club and opponents claim that TLS is ignoring community health and safety concerns by transporting coal to its proposed facility in open uncovered rail cars and will allow toxic dust and debris to blow into our neighborhoods. They compare the proposed terminal in Oakland to exactly what we see happening in nearby Richmond, where coal is currently being exported in this manner through a private terminal.

> ***FACT:***
> *TLS is spending millions of dollars to design and build a unique and innovative facility that will operate in a way that is sensitive to the environment and surrounding communities.*
>
> ***FACT:***
> *The coal that will be exported through the proposed terminal is, in fact, graded to be of the highest quality coal in the world.*
>
> ***FACT:***
> *All rail cars used will actually be designed with secured covers to prevent any release of dust or debris in transit.*

MYTH:

Images being shown by the Sierra Club and opponents imply that huge mountains of coal will be piled up on the terminal site, pushed and moved around by bulldozers, and dumped into open ships in the bay.

> ***FACT:***
> *The facility that TLS is, in fact, designing will be the most innovative terminal of its type in the nation. It will transfer the various commodities, completely enclosed and encapsulated, from rail to ship, including its storage,. The concern about coal dust and debris can be eliminated because TLS will handle ALL of its commodities in a way that coal, for example, would never see the light of day.*

MYTH:

TLS is building a coal "plant" and Oakland's waterfront will be marred by ugly stacks of billowing black smoke and air quality will be severely compromised.

> ***FACT:***
> *This is blatantly untrue. TLS is NOT building a "coal plant". TLS will not in any way burn, crush, or process coal. Such a use would not even be permitted on the site.*

> ***FACT:***
> *TLS is building a "port terminal" that will simply facilitate the transport and transfer of commodities, including coal, from rail to ships that are headed to various parts of the world.*

> ***FACT:***
> *Air quality requirements in the Bay Area are extremely stringent and monitored closely by State, Federal, and local regulatory agencies. The proposed project must meet or exceed all of those requirements to operate.*

MYTH:

The Sierra Club and opponents have stated that "Exporting coal is bad for jobs... and terminals that ship coal provide far fewer jobs than terminals that ship containers or general cargo and that means fewer local jobs... Coal exploits the Bay Area's economy...Coal is an anti-union industry."

JOBS...

FACT:
More than 2,400 jobs will be created to operate and support the proposed terminal and perform various related work activities.

FACT:
TLS is committed to insuring that contracts and jobs related to actual construction of the terminal will be awarded to local and minority firms and individuals.

FACT:
Focus will be given to the recruitment and training of Oakland residents with emphasis on West Oakland residents for these jobs.

FACT:
Oakland has long been a major port city and transportation hub. The Port of Oakland moves 99.9% containerized cargo. Adding bulk commodities to the mix of cargo on Oakland's waterfront increases its importance as a port city and obviously adds MORE jobs.

FACT:
There has never been any resistance whatsoever to the idea of union labor operating as usual on those jobs that would typically be done by union workers. In fact, TLS is committed to working with organized labor to provide new opportunities for the training and development of local workers to join those ranks.

ECONOMIC DEVELOPMENT…

FACT:
The commodities terminal proposed by TLS will have sufficient capacity to insure successful operation and generation of revenue.

FACT:
Revenues from the terminal will be shared with the City of Oakland as a part of its master lease agreement which will insure that there are economic benefits for Oakland.

FACT:
Related businesses that support the activities of this type of terminal will emerge and generate further economic benefits, growth, and development for the City.

COMMUNITY BENEFITS…

MYTH:
The export of coal through Oakland will be bad for Oakland and provides nothing of benefit for local communities like West Oakland and adjacent areas.

FACT:
TLS is genuinely committed to being socially responsible.

FACT:
TLS has already begun building community trust and alliances. Those alliances act as important resources to TLS as it moves forward in responding to community concerns and expectations. Likewise, TLS is identifying ways to support and address specific needs and expectations defined by the community as important.

FACT:
TLS is committed to making this terminal an economic asset to the local community by adopting a business model that proactively incorporates an actual ongoing financial investment in a range of critical community programs and activities.

CONCLUSION:

- Contrary to the misleading information being promoted by opponents of the project, TLS is seeking to develop a successful project that will bring jobs, economic development and community benefits to our city.

- ***This is an opportunity for Oakland to be the leader using innovation, technology, community programs, and external partnerships to create solutions for the transportation and handling of bulk commodities.***

CITY OF OAKLAND

CITY HALL • 1 FRANK H. OGAWA PLAZA • OAKLAND, CALIFORNIA 94612

OFFICE OF THE CITY ADMINISTRATOR
Sabrina B. Landreth
City Administrator

(510) 238-3301
FAX: (510) 238-2223
TDD: (510) 238-3254

NOTICE OF PUBLIC HEARING

Notice is hereby given that the Oakland City Council will hold a public hearing on the following matter:

Conduct and Public Hearing and Upon Conclusion Consider A Report and Recommendation for Options to address Coal and Coke issues, including Introducing

AN ORDINANCE (1) AMENDING THE OAKLAND MUNICIPAL CODE TO PROHIBIT THE STORAGE AND HANDLING OF COAL AND COKE AT BULK MATERIAL FACILITIES OR TERMINALS THROUGHOUT THE CITY OF OAKLAND AND (2) ADOPTING CEQA EXEMPTION FINDINGS

And Adopting

A RESOLUTION (A) APPLYING ORDINANCE NO. _____C.M.S. [THE ABOVE ORDINANCE] TO THE PROPOSED OAKLAND OVERSIZED AND BULK TERMINAL LOCATED IN THE WEST GATEWAY DEVELOPMENT AREA OF THE FORMER OAKLAND ARMY BASE; AND (B) ADOPTING CEQA EXEMPTION FINDINGS AND RELYING ON THE PREVIOUSLY CERTIFIED 2002 ARMY BASE REDEVELOPMENT PLAN EIR AND 2012 ADDENDUM

The Oakland City Council is scheduled to hold a public hearing on the above matter at a Special Meeting on **MONDAY JUNE 27, 2016 AT 5:00 P.M.** in the City Council Chambers of City Hall located at One Frank H. Ogawa Plaza in Oakland, California. All interested persons are invited to attend and be heard.

The City Council Agenda Report, proposed legislation and other agenda-related materials will be available no later than noon on Friday, June 24, 2016 and can be viewed at https://oakland.legistar.com/calendar.aspx

Moreover, copies of the proposed Oakland Bulk and Oversized Terminal's Basis of Design, as well as some of the previously submitted public comments, are available for review at the City of Oakland Bureau of Planning, 250 Frank H. Ogawa Plaza, Suite 2114, Oakland, CA 94612, Monday through Friday, 8:30 a.m. to 4:00 p. m. except Wednesday 9:30 a.m. to 4:00 p.m. These documents are also available on the City of Oakland website at:
http://www2.oaklandnet.com/Government/o/CityAdministration/d/NeighborhoodInvestment/OAK038485

If you challenge the proposed legislation in court, you may be limited to raising only those issues/evidence you or someone else raised at the public hearing described in this notice, or in written correspondence delivered to the Department of Planning & Building no later than 4:00 p.m. of the date of the public hearing (as described below), or to the City Council at the hearing.

For further information, please contact Heather Klein at (510) 238-3659. Written comments may be addressed to Heather Klein via email at OBOT@oaklandnet.com, via facsimile at (510) 238-4730, or via U.S. mail at City of Oakland, Department of Planning & Building, Bureau of Planning, 250 Frank H. Ogawa Plaza, Suite 2114, Oakland, California, 94612.

Office of the City Administrator
June 17, 2016

STATE CAPITOL
SACRAMENTO, CA 95814
TEL (916) 651-4009
FAX (916) 651-4909

California State Senate

SENATOR LONI HANCOCK
NINTH SENATE DISTRICT

DISTRICT OFFICE
1515 CLAY STREET
SUITE 2202
OAKLAND, CA 94612
TEL (510) 286-1333
FAX (510) 286-3885

Dear Friends:

Recently, local newspapers have reported on a proposed project at the former Oakland Army Base that would bring up to 9 million tons of coal to West Oakland each year. Coal would come on railroad lines from Utah and be transferred to cargo ships for export to China and other countries.

This project has raised many concerns. **What environmental impact will a coal export terminal have on West Oakland and the surrounding community?** How will the local economy be impacted? Is a coal export terminal the best economic development strategy for Oakland and the East Bay? **How will this new coal export terminal detract from the climate and clean energy policies that California is implementing throughout the state?**

What about health and safety? Many studies have shown that there are environmental and public health problems associated with coal extraction, transportation and transfer. Should public funding be used to subsidize the movement of a commodity that contributes to global warming?

These and other issues need to be closely examined as the City of Oakland decides what to do on this issue.

Your input will be important as elected officials and government agencies grapple with the issue of shipping coal through the East Bay. **Please take a moment to share your opinion by filling out the questionnaire below. If you prefer to submit your response electronically, please visit http://senate.ca.gov/1641/coal**

THANK YOU.

LEGISLATIVE SURVEY ON COAL

Do you think the City of Oakland should build a new export terminal that will allow coal to be transported to Oakland from another state and shipped overseas?

☐ YES ☐ NO

2. Do you think the City of Oakland and the developer of the new export terminal should move ahead with the project, but not allow coal to be shipped through it?

☐ YES ☐ NO

3. Do you think public funding should be used to assist in exporting coal -- a significant contributor to global warming?

☐ YES ☐ NO

4. Do you think the City of Oakland should pass an ordinance to prevent coal from being imported or exported on to City property?

☐ YES ☐ NO

5. Do you agree or disagree with the following statement: Creating jobs is more important than the environmental and health concerns associated with shipping coal through the East Bay.

☐ AGREE ☐ DISAGREE

6. What is your biggest concern about allowing a new coal export terminal to be built? (check one)

☐ The health and safety of Oakland residents and the surrounding community

☐ The health and safety of the workers at the coal export terminal

☐ The environment

☐ Public financing of a project that will help contribute to global warming

☐ I do not have any concerns

Comments _____

_____

_____

VICE-CHAIR
SHARON RUNNER

MEMBERS
ANTHONY CANNELLA
CONNIE M. LEYVA
HOLLY J. MITCHELL

CALIFORNIA LEGISLATURE

SECRETARY OF THE SENATE
DANIEL ALVAREZ

DEPUTY SECRETARIES
GAIL LANG
JEANNIE OROPEZA
BOB RUFFNER
SHERON VIOLINI

COMMITTEE ASSISTANT
JANE LEONARD BROWN

SENATE RULES COMMITTEE

KEVIN DE LEÓN
CHAIR

April 12, 2016

Ms. [redacted]
[redacted]
Oakland, CA 94619

RE: LEGISLATIVE OPEN RECORDS ACT REQUEST

Dear Ms. Falche:

We are in receipt of your correspondence dated March 19, 2016, directed to Senator Loni Hancock, and received by the Senate Committee on Rules on March 25, 2016, in which you request records pursuant to the California Public Records Act (Ch. 3.5 (commencing with Section 6250, Div. 7, Title 1, Gov. C.). Specifically, you have requested "copies of public records (of any kind, either written, typed, electronic, etc.) that [Senator Hancock's] office has generated regarding the proposed 'Oakland coal terminal'" that reflect "expenditures by [Senator Hancock's] office relating to studying and analyzing the purported health risks, including any correspondence (including electronic) with outside agencies, industry groups, non-profit groups and any other entities relating to this project and survey mailing cost."

The State Legislature is not subject to the California Public Records Act (subd. (f), Sec. 6252, Gov. C.). However, we have construed your request as one made pursuant to the Legislative Open Records Act (Art. 3.5 (commencing with Sec. 9070), Ch. 1.5, Pt. 1, Div. 2, Title 2, Gov. C.). Under the Legislative Open Records Act, requests to inspect legislative records must be directed to the appropriate Committee on Rules of each house of the Legislature, the Joint Rules Committee, or the Joint Legislative Audit Committee, as those committees are the only entities deemed to have custody of legislative records and have sole responsibility for making legislative records available for inspection (Sec. 9074, Gov. C.). Thus, this letter responds to your request on behalf of the Senate Committee on Rules.

Enclosed are records responsive to your request, with certain information redacted to preserve personal privacy (subd. (c), Sec. 9075, Gov. C.).

The Legislative Open Records Act provides for a number of exemptions by which certain legislative records are not subject to mandatory production under the act, including "[p]reliminary drafts, notes, or legislative memoranda" and "[c]orrespondence of and to individual Members of the Legislature and their staff" (subds. (a) and (h), Sec. 9075, Gov. C.). Any other responsive records fall within the scope of these exemptions and will not be produced.

Sincerely,

DANIEL ALVAREZ
Secretary of the Senate

Enclosures

SENATE MAIL PROGRAM
FINAL ACCOUNTING REPORT TABULATION

SMP # 2016-0623 OFFICE Senator Loni Hancock CODE [redacted]

EXEMPTION Letterhead Mailer

DESCRIPTION Survey on CA environmental policy (coal)

DROP DATE 02/29/2016 PIECES PRINTED 111,000 STAFF [redacted]

Type	Vendor	Funding Source	Cost	Reported By
Printing	Repro	General	$0.00	Reprographics
Printing	River City Printers, LLC	Block Grant	$5,305.00	SMP
Mailhouse	Mailing Systems, Inc.	Block Grant	$5,782.72	SMP
Postage Presort - Standard	Permit 3271	Block Grant	$18,543.44	SMP

Block Grant Costs: **$29,631.16**

General Costs: **$0.00**

Count Mailed 110,814

Date 03/10/2016

Date Posted

Staff [redacted]

Staff

BLUE: Accounting GREEN: SMP Binder WHITE: SMP File

07/12

EXPERIENCED MARITIME CEO

Port Authority CEO / Terminal Operations Executive / Global Commerce Management

Experienced maritime Chief Executive Officer. Expertise includes responsibility for Profit & Loss management, strategic organizational leadership and overall business direction with accountability for net assets of up to Two Billion Dollars.

Veteran leader in successful management of Port Terminals Operations with an excellent track record of operational and financial performance, elevating market position and strengthening competitive advantages of the organization.

Seasoned executive with over 30 years in international maritime operations including terminal operations, sales and marketing, administration and labor relations. A total of 36 years of progressive success in transportation management and leadership experience, revenue growth accountability, international commerce expansion, and innovative business strategies development. Global management responsibilities including sales and marketing with representatives around the world. Extensive experience and proficiency in Labor Relations.

Global reputation with strong industry relationships and personal contacts that are deep and wide within the decision-making ranks of the global shipping and international manufacturing community. Extensive private industry and public sector relationships network is complimented by being well connected in China and other Asian markets at both the political and commercial levels. Relationship network includes well established European contacts. Expansive long term relationships have supported track record of over three decades of continuous productive success in the Maritime-Transportation industry.

CAREER SUMMARY

- United States Marine Corps Officer
- President / CEO – Terminal Logistics Solutions, Oakland CA
- CEO – The Bridges Group International
- Executive Director - Virginia Port Authority / Virginia International Terminals
- Executive Director - Port of Oakland, California

  (Maritime / Airport / Commercial Real Estate)
- Director of Maritime - Port of Oakland, CA
- Vice President - Marine Terminals Corporation, Northern CA Division
- Terminal Manager - Marine Terminals Corporation, Ben E. Nutter Terminal
- Port Manager - Sea Land Services Inc.

  (Elizabeth NJ, Norfolk VA, Oakland CA)
- Manager Terminal Operations – Roadway Express

The Bridges Group International

Jerry A. Bridges

President/CEO
Terminal Logistics Solutions

300 Frank H. Ogawa Plaza
Suite 430
Oakland, CA
(510) 908-6270

jbridges@tlspops.com

NOTABLE INDUSTRY POSITIONS

Chairman, American Association of Port Authorities
2011 – 2012

Chairman, United States Delegation Port Authorities
2011 – 2012

Chairman, Global Logistics Institute
2011 –2013

Executive Committee International Association Ports & Harbors
2010 – 2013

Board Member, Marine Transportation System National Advisory Council
2010 – 2013

Marine Board Member, Transportation Research Board National Academy of Sciences
2008 – 2013

The Bridges Group International

Jerry A. Bridges

President/CEO
Terminal Logistics Solutions
Oakland, CA
(510) 908-6270

PROFESSIONAL & INDUSTRY BOARDS and CIVIC INVOLVEMENT HISTORY

- American Association Port Authorities, Chair (2011–2013)
- Global Logistics Institute, Chair (2011-2013)
- American Association Port Authorities, Vice Chair United States Delegation (2010)
- California Association Port Authorities, Chair (2006-2008)
- Pacific Maritime Association co-steering committee to resolve grievances with the ILWU and IAM
- Burlington Northern Santa Fe Railroad Customer Advisory Board
- Hampton Roads Virginia Area Boards of Directors: Maritime Association, Shipping Association, Chamber of Commerce, Hampton Roads Partnership Board
- Greater Norfolk Corporation Board of Directors
- Virginia Beach Vision Board of Directors
- Norfolk Education Foundation Board of Directors
- Sentara Hospital Corporation Board of Directors
- William & Mary School of Business Advisory Board
- Old Dominion University Business School Advisory Board
- George Mason University Short Sea Shipping Advisory Board
- Virginia Arts Festival Board of Directors
- Chrysler Museum of Art, Virginia Board of Directors
- Oakland Metropolitan Chamber of Commerce Board, Vice Chair (2005- 2007)
- Alameda County Health Foundation Board, Vice Chair (2005 -2006)
- Eastbay YMCA Board
- Bay Area World Trade Center Board
- Bay Area Council Board
- Eastbay Economic Development Alliance Board
- Oakland CA Junior Achievement Board of Directors, Chair (2003-2005)
- San Francisco Bay Area American Boy Scouts Annual Fundraising Chair (2002-2005)
- At-risk youth development and violence prevention volunteer organizations

FINANCIAL PERFORMANCE SAMPLING

Unprecedented state revenue development of $800,000,000 over 30 years that also preserved 30% market share and strengthen state port competitive advantage.

Developed new agreements with Ocean Carriers & Terminal Operators accomplishing $153,000,000 Guaranteed income.

Developed and implemented strategies that converted a $14 Million projected loss to a $22 Million profit and generated year-over-year revenue gains and profits.

Maintain above market performance during economic downtown 2008-2009.

Institution of ISO 9000 and 14000 protocols in every organization that lead to improved processes, efficiency enhancements, and elevated customer service to optimize revenue.

OP-ED: Oakland Terminal goes above and beyond industry standards to ensure safety and health of Oakland residents

postnewsgroup.com/blog/2015/09/21/op-ed-oakland-terminal-goes-beyond-industry-standards-ensure-safety-health-oakla

By Post Staff

By Dr. Washington Burns

As an Oakland resident who has dedicated my life to advancing the community, particularly public health issues such as asthma, I am proud to support the Oakland Global Trade and Logistics Center, which is truly transforming the decommissioned Oakland Army Base and bringing a myriad of economic benefits to our community.

I spent my teen years in West Oakland and returned in 1995 to be on the founding board of the Prescott-Joseph Center, where I have served as volunteer executive director for 19 years. Our mission is to improve the lives of the under-served residents of West Oakland.

I am a clean air advocate who served on the Maritime Air Quality Improvement committee of the Port of Oakland and brought the Breathmobile Program – a mobile asthma clinic – to West Oakland. I also partnered with the Port of Oakland on an initiative to mitigate air pollution from diesel burning trucks.

After reviewing the plans for the project, specifically the Oakland Bulk and Commodity Terminal, I can say with absolute confidence that all commodities that may be shipped through the terminal can be done so safely and in a way that does not impact the health and safety of Oakland residents or the environment.

The terminal operator – Terminal Logistics Solutions – has committed to go above and beyond industry standards and use enclosed rail cars and covered dome storage facilities. Commodities will be transferred, completely enclosed, from rail to ship mitigating any concerns whatsoever of dust and debris. In my opinion, there is absolutely no danger to Oakland residents.

Additionally, the community benefits package that has been developed is outstanding. The project will create 11,970 jobs once fully built out and generate $300 million in annual regional employment income. And, the project is required to have at least half of construction hours and hires for ongoing operations be allocated for Oakland residents, with an emphasis on West Oakland.

I am a proud supporter of this project and the best-in-class standards it will set in terms of both environmental protection and community benefits.

Washington Burns, M.D. is executive director of the Prescott-Joseph Center, director of the Breathmobile Program, Chairperson of the Alameda County Asthma Coalition, and a member of the Regional Asthma Prevention Advisory Committee.

WASHINGTON BURNS, M.D

Retired Medical Doctor and Community Leader

SUMMARY OF EXPERIENCE

- Administrative Director, Northern California Breathmobile ®, 2007-Present (Volunteer)

  Executive Director (volunteer) Prescott-Joseph Center for Community Enhancement, Appointed August, 1998-present

- President, West Oakland Community Collaborative, August, 2004-present

- Program Director, West Oakland Asthma Coalition, July, 2001-present

- Medical Director, Clinical Laboratory, California Pacific Medical Center, San Francisco, 34 years (retired)

- Assistant Pathologist, Englewood Hospital, Englewood, New Jersey, 1966-1967

- Associate Pathologist and Chief of Clinical Laboratory and Vice-Chief of Department of Pathology, California Pacific Medical Center (formerly Presbyterian Medical Center), 1967-2000

HIGHLIGHT OF EXPERIENCE

POSITIONS

Administrative Director, Northern California Breathmobile ®, 2007-Present (Volunteer)

Executive Director (volunteer) Prescott-Joseph Center for Community Enhancement, Appointed August, 1998-present

President, West Oakland Community Collaborative, August, 2004-present

Program Director, West Oakland Asthma Coalition, July, 2001-present

Medical Director, Clinical Laboratory, California Pacific Medical Center, San Francisco, 34 years (retired)

Assistant Pathologist, Englewood Hospital, Englewood, New Jersey, 1966-1967

Associate Pathologist and Chief of Clinical Laboratory and Vice-Chief of Department of Pathology, California Pacific Medical Center (formerly Presbyterian Medical Center), 1967-2000

BOARDS

Member, Board of Directors, St. Martin de Porres School, 2004-present

Member, Board of Directors, Prescott-Joseph Center for Community Enhancement, 1995-Present

Founding Board Member, Prescott-Joseph Center for Community Enhancement, 1995

APPOINTMENTS

Member, Board, West Oakland Specific Plan Board (West Oakland Redevelopment), 2011

Deputy Regional Commissioner, Laboratory Inspection and Accreditation Programs, Northern California and Nevada, College of American Pathologists, 8 years

Assistant Regional Commissioner, Region X, Laboratory and Accreditation Program, American College of Pathology, 1975-1983

Chairman (6 years) and Member of Board (13 years), Irwin Memorial Blood Bank (now Blood Banks of Pacific)

Clinical Professor of Pathology, School of Dentistry, University of San Francisco, 1978-1981

Instructor and Clinical Professor, School of Public Health, University of California, Berkeley, 1975-1983

EDUCATION

University of Buffalo School of Medicine, New York, M.D., June 1961

University of California, Berkeley, B.A., June 1957

University of California, Berkeley, B.S., June 1952

INTERNSHIP

.iiladelphia General Hospital, Philadelphia, PA 1961-1962

RESIDENCY

Columbia- Presbyterian Medical Center, New York, New York 1962-1965

Englewood Hospital, Englewood, New Jersey 1965-1966

PAST MEMBERSHIPS

Fellow, American College of Pathology

Fellow, American Society of Clinical Pathology

American Medical Association

California Medical Society

San Francisco Medical Society

MILTARY

.S. Army, 1953-1955, Several Service Medals and Honors

AWARDS

Matthew Brandon Sooy Memorial Asthma Award, Ethnic Health Institute, 2012

Martin Luther King, Jr. Community Service Award, Attitudinal Healing Connection, Inc., Taylor Memorial United Methodist Church and Dr. Matthew Fox, 2011

Regional Heroes Award, University of California, Berkeley, School of Public Health, 2011

Community Leadership Award, San Francisco Foundation, 2010

Whitney M. Young, Jr. Service Award, Boys Scouts of American, San Francisco Council, 2009

Peter E. Haas Public Service Award, University of California, Berkeley 2007

Jefferson Award, American Institute for Public Service, Local Award, 2006

Man of the Year, Black Women Organized for Political Action, 2006

Ujima Award, St. Columba Catholic Church, 2006

Person of the Year Award, Port of Oakland, 2003

Oakland Bulk and Oversized Terminal

Air Quality & Human Health and Safety Assessment

of Potential Coal Dust Emissions

prepared for:

California Capital and Investment Group

Prepared by:

Edward J. Liebsch, MS

Michael Musso, PE, MS, MPH

HDR Engineering

September 2015

EXECUTIVE SUMMARY

Purpose

HDR's environmental experts in the air quality and risk assessment fields were retained to provide an assessment of potential human health and safety impacts due to transporting and handling of coal as part of the operation of the proposed Oakland Bulk and Oversized Terminal (OBOT) facility to be developed by California Capital & Investment Group (CCIG) and operated by Terminal Logistics Solutions (TLS) at the Port of Oakland. Although we understand that there has been no binding commitment to transport coal or any other given commodity through OBOT to date, this white paper is intended to:

1) assess the potential for coal dust emissions during rail transport of coal to OBOT and handling of coal at the terminal;

2) identify technologies and operating practices to minimize related potential air pollutant emissions, and any impacts, to affected communities; and

3) assess the potential for health and safety impacts from transport of coal to OBOT and handling of coal at the terminal.

Findings

This assessment demonstrates that the amounts of coal dust emissions to the City of Oakland resulting from transport of coal to OBOT and related terminal operations will be negligible, and that impacts from coal dust emissions and deposition will not harm health or the environment, based on planning and design that would utilize best practices to avoid emissions to the ambient air from rail transport and handling of coal at OBOT as further described in this paper.

I. INTRODUCTION

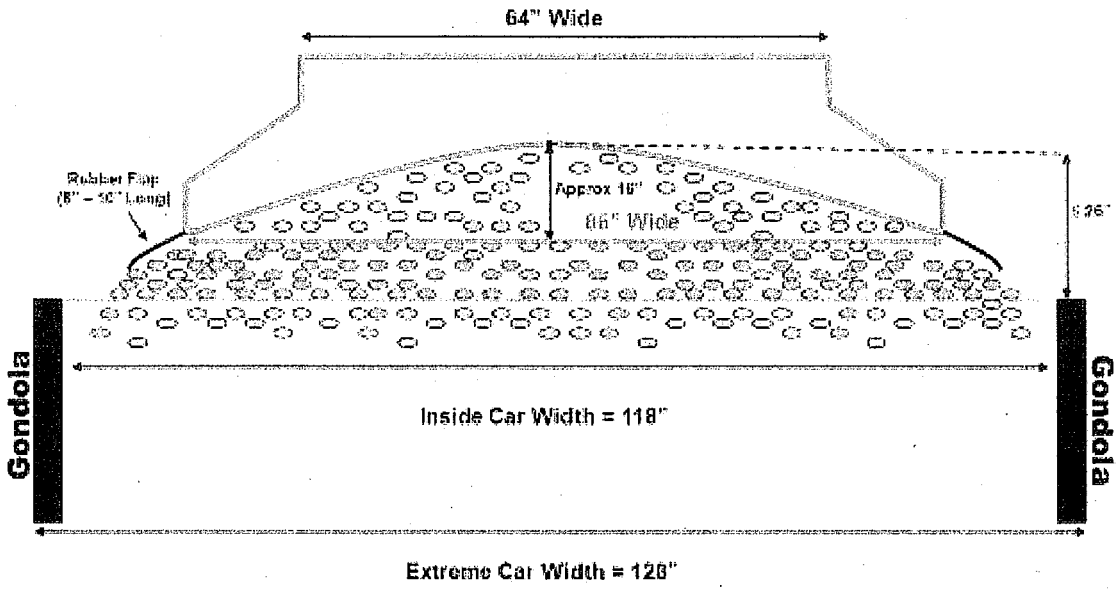
HDR's environmental experts in the air quality and risk assessment fields were retained to provide an assessment of potential human health and safety impacts due to handling of coal as part of the operation of the proposed Oakland Bulk and Oversized Terminal (OBOT) facility to be developed by California Capital & Investment Group (CCIG) and operated by Terminal Logistics Solutions (TLS) at the Port of Oakland. Although we understand that there has been no binding commitment to transport coal or any other given commodity through OBOT to date, this assessment addresses health and safety impacts that could be caused by air pollutant emissions due to coal transport by rail, storage at the terminal, and loading onto ships.

II. MINIMAL COAL DUST EMISSIONS WILL RESULT FROM COAL TRANSPORT/HANDLIING RELATED TO OBOT.

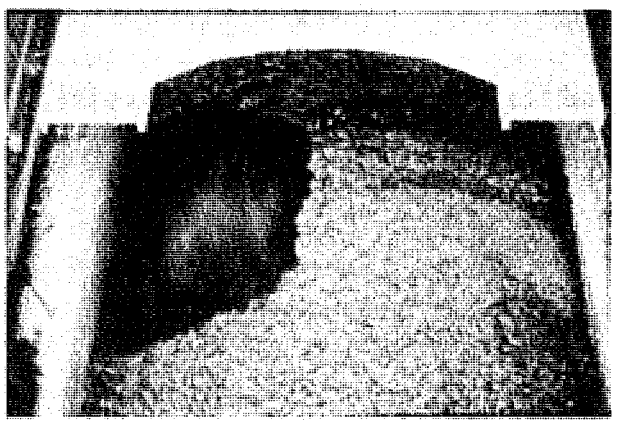
A. Potential Emissions from Rail Cars in the Oakland Area Will Be Negligible.

Moving rail cars would be expected to emit only negligible quantities of coal dust in the Oakland area. As shown in a study by the BNSF and Union Pacific (UP) railroads in the Powder River Basin (http://www.bnsf.com/customers/what-can-i-ship/coal/coal-dust.html#2), and as expected due to basic physics of wind and turbulence, the vast majority of coal dust emissions leave the rail cars as the train accelerates up to cruising speed, falling on the nearby right-of-way. Because coal dust emissions near the point of train origin create a maintenance concern for railroads (affecting track ballast), the railroads in recent years have implemented various measures to substantially reduce the amount of dust escaping the cars. These measures have included profiling the coal pile on the cars to give the coal a more aerodynamic shape, packing the coal in the cars to leave fewer air spaces for wind to dislodge coal particles, and applying various topping agents to bind smaller coal particles to larger chunks of coal. The BNSF's load profiling requirements for coal are illustrated in the figure below.

Load Profile Requirements



And, the photo below illustrates the strong binding / crusting effect of topping agents used when transporting coal by rail. (The photo shows a bottom-dumping car that has just been unloaded, yet the surface crust remains in place bridging across the top of the car.)



The coal dust mitigation methods of load profiling/packing and using topping agents have been effective in greatly reducing emissions of coal dust, by at least 85% (see http://www.bnsf.com/customers/what-can-i-ship/coal/coal-dust.html).[1] In addition, the vast majority of the limited coal dust emissions occurring when using profiling, packing and topping controls will occur during the initial acceleration phase after the train cars are freshly loaded. This is because any erodible coal dust (which will be limited based upon implementation of standardized measures described above) will be blown off the cars near the point of train origin, as the train is accelerating, and not as the train approaches its destination. Once a train attains cruising speed, the erodible dust already has been blown off the cars. At that point, there is little potential for further dust or particle emissions as the train travels to its destination.

The concept that emissions from piles of coal or other mineral aggregates occur only after disturbance of the pile is well recognized by the USEPA in its emissions guidance document known as Publication AP-42. These emissions occur when the wind gets to an erosion threshold and can continue as wind speed increases. If a subsequent wind attains a higher threshold, there will be additional emissions. But once a train attains its maximum speed, such that the relative wind speed on the coal surface is maximized, the wind will remove any erodible dust such that there is little potential for further dust or particle emissions. The finite erosion potential of a coal pile is described in AP-42 as follows:

> *Field testing of coal piles and other exposed materials using a portable wind tunnel has shown that (a) threshold wind speeds exceed 5 meters per second (m/s) (11 miles per hour [mph]) at 15 cm above the surface or 10 m/s (22 mph) at 7 m above the surface, and (b) particulate emission rates tend to decay rapidly (half-life of a few minutes) during an erosion event.* ***In other words, these aggregate material surfaces are characterized by finite availability of erodible material (mass/area) referred to as the erosion potential.*** [Sec. 13.5.2.1 (emphasis added); see http://www.epa.gov/ttn/chief/ap42/ch13/final/c13s0205.pdf).

In sum, moving rail cars would emit negligible quantities of coal dust in the Oakland area because (1) load profiling, packing, and topping measures that would be used are

[1] These materials reference the same BNSF and UP study that Earthjustice relies on (in its 9/02/15 letter to the Oakland City Administrator) to support its assertion that rail cars can shed hundreds of pounds of coal dust per car. However, that is only the case if none of the dust-reducing practices discussed above—*i.e.*, profiling, packing, and applying topping agents—are used. Thus, the more important point, which Earthjustice ignores, is that commonly implemented measures dramatically reduce the kind of coal dust emissions asserted by Earthjustice. Furthermore, nearly all of these emissions occur near the mines where the trains are loaded.

effective in minimizing erodible dust emissions, and (2) the limited amount of erodible dust not addressed by these standard mitigation measures would leave the cars early in the trip, hundreds of miles before the cars reach Oakland. Moreover, to ensure that there are no concerns with coal dust emissions from moving rail cars serving OBOT, the port developer will cover the rail cars to prevent any such emissions that could otherwise occur early in the train trips.

B. State-of-the-art Controls will be used for OBOT Terminal Operations to Ensure that Coal Dust Emissions are Negligible.

Within the terminal facility, there is a potential for coal dust emissions from unloading of rail cars, conveying coal to enclosed storage buildings, conveying coal to the dock, and loading it onto ships. While any coal dust emissions from these activities are not expected to harm public health, the environment, or property, the emissions should be controlled properly to eliminate that potential, as well as to avoid posing a significant explosion/fire hazard for workers or port infrastructure or a nuisance to the public. The list below describes the coal dust control measures that HDR recommends employing at the OBOT facility:

1) Rail car unloading buildings should be designed with openings at both ends that are sized to the rail cars and are largely occupied by the bodies of the rail cars adjacent to the car being unloaded. Rails cars should unload via bottom drop (rather than tipping/dumping), and coal dust emissions from the unloading operations should be controlled by water sprays and/or foggers as coal drops into a hopper that connects to the conveying system.

2) Coal conveyed to coal storage buildings or directly to docked ships should be conveyed in totally enclosed systems (including transfer points from one conveyor to another). There should be no openings for emissions to enter the outdoor air, and water sprays should be strategically implemented to minimize dust in the enclosed spaces.

3) Coal not immediately loaded to a ship should be conveyed to piles in the fully enclosed storage buildings via an overhead conveyor and "tripper" system, with water sprays applied as needed to minimize dust.

4) Coal in the storage buildings generally should be reclaimed into the conveying system by dozers (front end loaders) pushing coal into any of several reclaim hoppers in the building floors (rather than via scooping and dumping). In addition,

filtered ventilation should be strategically implemented in the storage buildings as part of the facility's overall air handling design to protect workers.

5) Coal loaded to the ship should be loaded via ship loader with a telescoping chute to minimize drop distance of coal. In addition, water sprays should be applied to the coal to keep it moist so that there are no significant emissions of coal dust during loading.

With implementation of the above design/control features, coal dust emissions at the OBOT facility will be negligible. Further, the Bay Area Air Quality Management District (BAAQMD) will ensure that Best Available Control Technology (BACT) for emissions reduction is applied as required, and will enforce any additional appropriate air permit conditions needed for these specific operations. Additionally, if any of the negligible coal dust emissions are deposited on site, they will be regulated under NPDES permit(s) that require (1) management of the site so as to minimize the prospect of their being captured in storm run-off and (2) monitoring of storm outfalls to determine the effectiveness of the management measures.

It is important to control dust emissions not only to the outdoor air, but also within enclosed spaces, as dust buildup in enclosed spaces can present a fire and explosion hazard under certain circumstances. As explained more fully in Attachment 1, the risk of fire/explosion in the coal handling and storage context is readily manageable, and the following additional best design practices would be employed for indoor dust control to minimize any potential for such hazards:

1. Unloading Process
   - Manage drop distance and dust cloud formation.
   - Use rail cars that unload from the bottom of the car.
2. Limit Dust Accumulation
   - Limit formation of dust where possible.
   - Use dust extraction systems in the hoppers to remove dust from the process.
   - Use misting systems to wet the product as it is unloaded.

3. Mitigate Ignition Sources
   - Eliminate, to the greatest extent reasonably possible, static electricity by grounding all equipment and using materials that will not "encourage" the buildup of static charge.
   - Appropriately protect electrical equipment in protective enclosures as required by the codes and standards.
   - Mitigate tramp metal introduction into the process.
   - Monitor bulk temperature entering the process from the rail cars to the storage piles.
   - Provide spark detection in conveyance equipment.
4. Building Design
   - Use explosion relief vents as required by the codes and standards.
   - Provide suitable separation distances from adjacent buildings and structures to limit the potential for damage to other structures (and limit risk to any offsite facilities).
5. Storage
   - Limit air circulation and additional handling in the piles to prevent oxygen infiltration.
   - Adhere to good industry practice and process for pile shape, packing in layers, and pile height.
   - Regulate monitoring of piles for internal temperatures and gas production.
6. Emergency Management
   - Develop detailed emergency response plan with the local emergency responders.
   - Design the site to provide access and necessary equipment.
   - Properly train and educate emergency responders and facility operators.
   - Regularly maintain and inspect fire protection equipment.

Buildup of dust at the facility (for instance on floors, equipment, vehicles, and other surfaces) is of course anticipated and will be addressed in accordance with proper housekeeping practices and occupational health and safety regulations. Process wastewater will be conveyed to an on-site treatment facility for either recirculation on-site (as process water) or for discharge as appropriate under required local or State

permits, and, pursuant to storm water permitting, the site will be (1) managed site so as to minimize the prospect of deposits being captured in storm run-off and (2) storm outfalls will be monitored to determine the effectiveness of the management measures.

III. EARTHJUSTICE CLAIMS THAT COVERED FACILITIES CAN LEAD TO AIR QUALITY VIOLATIONS ARE BASED ON MISPLACED ASSUMPTIONS.

Because Earthjustice pre-filed comments in its 9/2/2015 letter to the Oakland City Council, HDR also examined the assertion in that letter that even covered coal-handling facilities cannot protect public health and safety. According to Earthjustice, this assertion is based on "air modeling for a proposed 'state of the art' covered coal export facility at the Port of Morrow in Oregon [which] showed major exceedances of particular matter and [NOx] national ambient air quality standards." See page 10 and footnote 12 of the 9/02/15 letter. The link provided refers to an October 2012 report produced by AMI Environmental (AMI) for Sierra Club called *AERMOD Modeling of Air Quality Impacts of the Proposed Morrow Pacific Project*: http://media.oregonlive.com/environment_impact/other/AERMOD_Modeling_Morrow_vfin.pdf.

As an initial matter, the results of that report are directly at odds with the review of that project by the Oregon Department of Environmental Quality (ODEQ), which found no such threat to National Ambient Air Quality Standards (NAAQS) and granted an air permit that allows for coal handling at the terminal.

The Sierra Club's study predicted maximum 1-hour NOx and 24-hour $PM_{2.5}$ impacts of more than 10 times the respective NAAQS for these averaging periods. Yet, there are many open coal piles and coal export facilities in the U.S. and numerous rail yards and rail intermodal freight facilities across this country, many with far greater activity levels for locomotive activity and coal handling (and less aggressive dust controls) than proposed for the Port of Morrow. If the Port of Morrow modeling was in any way credible, local and state air quality regulatory agencies would be measuring massive violations near such facilities nationwide, and the USEPA would be addressing the presumably bad air quality near these facilities as a top priority. Yet, that is not the case.

When a dispersion modeling analysis finds concentrations many times the NAAQS, and far greater than any actual air quality measurements, it signals modeling errors and/or improper modeling assumptions. In modeling jargon this is a matter of "garbage in, garbage out." In the case of the Sierra Club modeling for Port of Morrow, multiple egregious errors or bad assumptions were made, which led to results that grossly over-

predicted the actual impacts of such a facility. We have identified many errors in that modeling effort, including the following major flaws:

1) **Emission rates were erroneous.** Emission rates used in the Sierra Club model were significantly overstated and were assumed to occur continuously for activities that are relatively brief and intermittent throughout the course of a year. For example, wind erosion was assumed to create emissions from the barges and the rail cars every hour of the year, when it is well known that once a wind erosion event occurs, the erodible dust is very quickly depleted (see USEPA AP-42 reference cited earlier) such that there is no more wind erosion potential unless the coal pile is again disturbed after the initial wind erosion event.

2) **Mobile emissions sources were misrepresented.** Emission source activities in the Sierra Club model were artificially concentrated in space. For example, locomotive emissions were treated as if they would occur at a single, geographically-fixed point source when, in fact, locomotives would be moving along a significant length of track during unloading. They should have been treated in the model as an "area source" or "line source," which would result in more dispersed emissions consistent with reality. The model also treated emissions from tugboats used to tow coal barges from the terminal to a ship 200+ miles downriver in the same erroneous manner. Tugboats do not sit in one spot all year at maximum emissions. They are working vessels with almost continuous movement over a large area. Thus, the Sierra Club modeling study greatly inflated the coal dust and NOx emissions from train and barge transport by over-concentrating them.

3) **Wind erosion calculations assumed enclosed storage areas were completely open.** As part of the Port of Morrow operation, barges would carry coal from the port terminal some 200+ miles downriver to the bulk transport vessel. In calculating related wind erosion emissions, the Sierra Club model wrongly assumed that the entire surface of the barges would be open to the atmosphere. In fact, the barges were fully enclosed, except for small hatches in the form of slits through which the loading chute would extend during loading. Little (if any) coal dust would escape a slit during loading because the drop point was well below deck.

4) **Stationary emission points were improperly combined.** Not only were proposed mobile emission points misrepresented as detailed above, but also

improper stationary source stack parameters were used in the Sierra Club model. For example, the site was planned to have 3 coal storage buildings, each with 5 scrubber exhausts. The model erroneously combined these 15 emissions sources into one source. In addition, the modeler arbitrarily placed the height of that exhaust at only one meter above ground (when the stacks were actually designed to be 25 meters above ground), and the model applied a vertical velocity of zero meters per second (when even a modest vertical velocity of five meters per second would enhance dispersion significantly). This greatly exaggerated the calculated concentrations at ground-level.

5) **Receptors (*i.e.*, areas where the public could be located) ignored physical realities.** Receptors or points at which concentrations were calculated by the model were placed too close to the emissions sources, often at points where the public could not have access. In other words, they were placed at locations that would not be considered "ambient air." This is akin to assuming that people in everyday life would be able to place their mouths near the exhaust pipe of an operating vehicle and continuously inhale the exhaust as that vehicle travels. This is not reasonable or accepted practice for receptor siting.

As a result of the above major flaws, the Sierra Club Port of Morrow modeling study offers no value in determining the likelihood of impacts from a working coal terminal. After a technical review of the methods and procedures, one can offer that the modeling study was designed to produce unrealistic results, which bear no resemblance to the real world. By contrast, ODEQ's assessment in the air permit review process determined that the Port of Morrow project does not represent a threat to NAAQS attainment, and ODEQ issued an air permit for that facility.

IV. COAL DUST EMISSIONS FROM TRANSPORTING COAL TO, OR HANDLING COAL AT, OBOT WILL NOT HARM PUBLIC HEALTH OR THE ENVIRONMENT.

Coal from Utah is a naturally-occurring mineral and will not be processed via chemical addition, treatment, burning, or any other means after it is mined and loaded onto rail cars for direct shipment to Oakland. Coal and coal dust in itself is not specifically regulated or defined as a hazardous material by USEPA, and is not included on the State of California's Proposition 65 list of chemicals known to cause cancer or reproductive toxicity (California EPA OEHHA; January 23, 2015 update). Coal dust is regulated by OSHA and the Mine Safety and Health Administration (MSHA) for occupational/mining operations where intense exposures via inhalation are encountered. The California Division of Occupational Safety and Health (Cal/OSHA)

also regulates coal dust. Coal is utilized for the production of granular and powdered activated carbon which is used in numerous industrial and water treatment applications to remove impurities and, in the case of drinking water, organic chemicals and taste and odor precursors (think of activated carbon in store-bought water purifiers).

A. The Surface Transportation Board (STB) Recently Performed the First Quantitative Assessment of Potential Health Risks from Coal Dust by a Federal Agency.

The first study of potential health effects from coal dust emissions related to rail transport was issued in 2014 on behalf of the Surface Transportation Board (STB). That study was done for a proposed 42-mile rail line between Colstrip, Montana and the Ashland and Otter Creek areas of Montana (also known as the Tongue River Rail Project). STB's Office of Environmental Analysis (OEA) determined that the preparation of an Environmental Impact Statement (EIS) was appropriate (http://www.tonguerivereis.com/draft_eis.html). OEA solicited input from the USEPA and other Federal and State agencies on several resource areas.

The Tongue River study contains the first detailed quantitative analysis of coal dust associated with the transport of coal by rail conducted by a Federal agency. Potential air quality and other human health effects were quantitatively modeled and assessed in the DEIS, along with potential ecological impacts from coal dust. Major DEIS assessment items and findings related to OEA's coal dust evaluations are summarized below.

- Estimated traffic on the proposed line would consist of approximately 7.4 trains per day to and from the mine (3.7 trains in each direction). OEA also considered the possibility that other coal mines could be proposed and developed in the area.

- Open top rail cars were assumed with application of a topping agent and use of coal profiling techniques during loading.

- USEPA's AERMOD dispersion model was used in the Tongue River study to assess both air quality (ambient concentrations of particulate matter) and deposition.

    - OEA modeled the concentrations of airborne coal dust from train cars (including PM_{10} and $PM_{2.5}$) and determined that they are expected to be below the standards set in the NAAQS and the Montana Ambient Air Quality Standards (Montana AAQS) to protect human health.

- OEA also analyzed how deposited coal dust from the rail cars could impact human health (via direct contact pathways, considering exposure scenarios for soil, surface water, fish tissue, and sediment media). OEA used a fate and transport modeling approach to predict concentrations of metals in these media, and then compared the modeled concentrations with available USEPA risk-based screening levels developed for human exposures to these media. The DEIS analysis concluded that the modeled concentrations of individual metals in each of these media would be below the respective USEPA risk-based criteria.

Following the analyses presented in the DEIS, OEA is not recommending that the STB impose additional coal dust mitigation measures for rail transport of coal in open cars.

Perhaps most important for purposes of comparing those results to the Port of Oakland, the modeling completed for Tongue River addressed emissions from open rail cars traveling near the mine facility where they were loaded. By contrast, when passing through Oakland, the rail cars delivering coal to OBOT will be covered and will therefore not be a source of dust emissions from wind erosion.

B. *Any Coal Dust Emissions from Delivery to and Handling at OBOT Will Not Harm Public Health or the Environment.*

Bituminous Utah coal has a fixed-carbon content of over 60%. Minerals make-up approximately 10% of the coal, with silica, alumina, lime, sulfur trioxide, and ferric oxide accounting for approximately 94% of the mineral content (http://bowieresources.com/skyline/). Metals found in coal are bound in these and other mineral matrices (unlike in coal ash, where metals are concentrated following the burning of coal).

While the inhalation pathway of exposure is the most relevant, implementation of the rail car covers and recommended controls for OBOT terminal operations will ensure that coal dust emissions are negligible. Furthermore, the terminal facility will require an air permit through BAAQMD, one of the most stringent regulatory agencies in the U.S., and that air permit will impose emissions limits with monitoring, recordkeeping, and reporting requirements to ensure that the facility will not cause or contribute to a violation of air quality standards (which are developed and enforced to be protective of human health and the environment).

Metal constituents and concentrations, based on laboratory extraction and analysis of Utah-based coal, are summarized in the below table (RCRA metals and others that are commonly evaluated as environmental contaminants are tabulated). To provide some perspective on potential direct contact risks from any small amounts of coal dust, we

prepared the chart below that provides (1) trace metal data for Utah-based coal, (2) background concentrations for these metals in California soils; (3) USEPA health-based soil screening levels (RSLs) for these metals in the context of residential land use; and 4) RSLs for these metals in the context of industrial land use. (RSLs are from the USEPA Regional Screening Level Summary Table (June 2015).)

	Uinta Basin Coal [a]			CA Soil Backgd [b]	EPA RSL - Res.	EPA RSL - Ind. Soil
	Average	Max				
Element	Ppm (or mg/kg)	ppm		mg/kg	mg/kg	mg/kg
Sb	0.2	0.9		0.15 - 1.95	39 [c]	580 [c]
As [d]	1	8		0.6 - 11	0.68	3
Cd	0.1	0.2		0.05 - 1.7	71	980
Cr	7	30		23 - 1579	120000 [e]	1800000 [e]
Co	1.2	3		2.7 - 46.9	23	350
Pb	3.6	7.7		12.4 - 97.1	400	800
Hg	0.05	0.38		0.1 - 0.90	23 [f]	350 [f]
Ni	2.8	10		9 - 509	1500 [g]	22000 [g]
Se	1.8	3.4		0.015 - 0.43	390	5800
Th	3.4	7.9		5.3 - 36.2	0.78 [h]	12 [h]
U	0.9	3.1		1.2 - 21.3	230	3500

a Air Toxic Emissions from The Combustion of Coal: Identifying and Quantifying Hazardous Air Pollutants from U.S. Coals, C.B. Spurzner, Argonne Natl. Lab., Pub. ANL/EAIS/TM-83, Sept. 1992.

b Kearney Rpt (1996) on California soil background concentrations (except where noted otherwise). Range of concentrations represents minimum and maximum levels observed in the Kearney study (across all statewide samples)

c Values for antimony pentoxide

d The proposed upper estimate for background arsenic (99th percentile) within undifferentia urbanized flatland soils is 11 mg/kg - San Francisco Bay Region (California Water Board).

e Chromium III

f mercuric chloride

g nickel soluble salts

h thallium (soluble salts)

The maximum concentrations in Utah coal fall within the ranges of, and in most cases, at the low end of the background level ranges for these metals in California soils, with the exception of selenium. However, selenium is not a concern because its maximum concentration in Utah coal is 100 times less than the RSLs for residential land use. Based on these data, the metals in Utah coal dust are all well within (or below) the

ranges of the background levels found in California soils and/or below risk-based soil screening levels published by USEPA.

V. CONCLUSION

We conclude that negligible coal dust emissions will result from transport of coal to OBOT and handling of coal at the terminal, and that public health and the environment will not be harmed by the limited emissions (and deposition) that do occur, based upon the following primary considerations:

- While studies show rail transport of coal does not result in significant emissions when profiling, packing and topping measures are used, the operator of the terminal is committed to effectively taking the risk of transport emissions out of the equation by using fully enclosed rail cars.

- This white paper outlines specific mitigation measures that would effectively control coal dust emissions and effectively mitigate fire/explosion hazards at the terminal site itself, and it is our understanding that the terminal operator is committed to implementing these measures.

- While only negligible amounts of coal dust would even be emitted from transport or terminal operations, it is important to keep in mind the following where any coal dust emissions are concerned:

    - Operations at OBOT will require an air permit through BAAQMD, one of the most stringent regulatory agencies in the U.S., and that air permit will have emissions limits with monitoring, recordkeeping, and reporting requirements to ensure that the facility will not cause or contribute to a violation of air quality standards (which are developed and enforced to be protective of human health and the environment).

    - Direct human contact with any dust deposited on soils would not harm health because the trace metal levels in the Utah-based coal shipped to OBOT are well within (or below) the background ranges for California soils and/or USEPA soil risk-based screening levels.

    - There will be no deposition of coal dust to waterways from the covered rail cars. Terminal operations may result in negligible coal dust emissions; however, if some of these emissions are deposited on site, they will be

regulated under NPDES permitting that require (1) proper treatment of process waters before discharge, (2) management of the site so as to minimize the prospect of their being captured in storm run-off and (3) monitoring of storm outfalls to determine the effectiveness of those management measures.

- Coal from Utah is a naturally-occurring mineral and will not be processed via chemical addition, treatment, burning, or any other means after it is mined and loaded onto rail cars for direct shipment to Oakland. In addition, coal and coal dust are not specifically regulated or defined as a hazardous material by USEPA, and are not included on the State of California's Proposition 65 list of chemicals known to cause cancer or reproductive toxicity. As for any industrial facility, worker safety will need to be addressed by conforming to Cal/OSHA standards for dusts in general and for coal dust.

HDR Engineering Credentials

Edward J. Liebsch

Sr. Air Quality Scientist

Education
Master of Science, Meteorology, Pennsylvania State University, 1981

Bachelor of Arts, Earth Science/Chemistry, Saint Cloud State University, 1978

Professional Affiliations
Air and Waste Management Association, 1996-2005

HDR Tenure
25 Years

Industry Tenure
34 Years

Training
Minnesota Title V Operating Permits, Minnesota Pollution Control Agency, 1995

MOBILE6 Emissions Model Workshop, FWHA, 2002

Project-Level Transportation Air Quality Analysis Workshop, FHWA, 2005

CALPUFF Dispersion Model, Bowman Environmental, 2005

MOVES Emissions Model Workshop, FWHA, 2008 & 2014

Professional Experience

Mr. Liebsch serves as a senior project manager and HDR's national technical expert for air quality efforts. His capabilities include dispersion modeling of air pollution, preparation of air quality permit (including PSD) applications, development of facility permitting strategies and regulatory evaluations with respect to local, state and federal air pollution regulations and statutes (Clean Air Act), and preparation of air quality analyses under National Environmental Policy Act (NEPA) and state environmental review programs.

Stationary Source Air Quality Project Experience

Mining

Sabine Mining Company, Hallsville, TX. Task leader for development of air emissions estimates and air quality regulatory applicability assessment for an environmental report as part of an Environmental Impact Statement. The EIS was required for expansion of the surface area of an existing lignite surface coal mine in east Texas.

Falkirk Mining Company, Bismarck, ND. Provided regulatory analysis and strategy assistance to Falkirk in assessing North Dakota Title V air emission operating permit requirements for a large surface lignite coal mine.

Inland Steel Mining Company, Virginia, MN. Managed project to assist in preparation of Minnesota Title V air emission operating permit application for taconite mine and ore processing facility.

I-Minerals, Bovill, ID. Air Quality technical lead for permitting and dispersion modeling of a proposed clay and sand mining and processing operation.

Kennecott Utah Copper, Third Party EIS, Magna, UT. As part of an EIS for a tailings basin expansion, provided QC/QC of air quality assessment sections of the draft EIS, including cumulative air quality impacts analysis.

LTV Steel Mining Company, Taconite Harbor, MN. Performed air dispersion modeling for monitor siting and re-permitting for coal-fired power plant and ore loadout facility at Taconite Harbor, Minnesota. Managed meteorological and air quality monitoring programs. Successfully completed Model Evaluation Study to select a site-specific dispersion model. Performed visibility impact modeling of power plant plumes and managed visibility monitoring program. Provided public comment response and negotiations with agencies, resulting in successful permitting outcome. Assisted in negotiating first mercury emission limit for a power plant in Minnesota.

LTV Steel Mining Company, Taconite Harbor, MN. Assisted in preparation of Minnesota Title V air emission operating permit application for taconite loading dock and 225 MW coal-fired power plant.

Confidential Client, ID. Air permitting strategy lead for preconstruction monitoring activities in connection with a prospective gold mining operation. Assisted in development of ambient air and meteorological monitoring plan and review of monitoring vendor proposals.

Reding Gravel and Excavating, Minnesota Registration Permit, Fairmont, MN. Project manager for preparation of a Minnesota registration (construction and operation) permit for a portable aggregate and rock crushing facility.

Industrial and Utility

American Crystal Sugar Company, Drayton & Hillsboro, ND; Crookston, Moorhead and East Grand Fork, MN. Provided regulatory review and permit application (including PSD) assistance for numerous projects at several sugar beet processing plants over 15 years.

Archer Daniels Midland Company, Enderlin, ND. Managed preparation of PSD permit application for addition of wood fuels to an existing biomass stoker boiler at an oil seeds processing facility. Permit application included dispersion modeling of criteria pollutants in comparison to NAAQS and PSD increments, air toxics dispersion modeling for demonstrating compliance with North Dakota's Air Toxics Policy, and Best Available Control Technology (BACT) analysis.

Army Corps of Engineers, 3rd Party EIS for Exxon-Mobile Proposed Gas Cycling Project, AK. HDR was the prime contractor supporting a confidential client and the USACE (Lead Federal Agency) in the preparation of a third party EIS. The EPA, USFWS, and State of Alaska are Cooperating Agencies. The EIS will evaluate the biological, physical, and social impacts associated with the development and operation of this proposed gas cycling project. The assessment will require analysis of complex issues such as proximity to Arctic National Wildlife Refuge, the recent ESA listing of the polar bear, and climate change. Mr. Liebsch provided QC/QC for the air quality and climate change sections of the draft EIS.

Confidential Client, CO. Air permitting lead in securing a minor air emissions construction permit for truck-to-rail crude oil trans-loading terminal in northern Colorado. Provided regulatory applicability evaluation and assessment of permitting options for client. Prepared permit application and provided draft permit review prior to issuance of the permit.

Confidential Client, ND. Air permitting lead in preparation of a minor air emissions construction permit for truck-to-rail crude oil trans-loading terminal in northwestern North Dakota. Provided regulatory applicability evaluation and assessment of permitting options for client. Directed preparation of construction air permit application to USEPA Region 8, which has permitting jurisdiction given project location on tribal land.

Consolidated Edison, New York, NY. Provided technical oversight and QA/QC for preparation of fourteen (14) Title V permit applications for electric generating facilities in New York, with combined capacity of several thousand megawatts. Facilities included oil and gas-fired steam and combustion turbine electric generating plants and equipment.

Department of Sanitation of New York City, Commercial Waste Management Study. New York, NY. Air quality technical leader for multi-facility impact analyses, including both stationary source and mobile source (intersection) dispersion modeling. Impact analyses included criteria pollutants (including $PM_{2.5}$), air toxics pollutants, and odors in accordance with New York City Department of Environmental Protection and New York State Department of Environmental Conservation policies.

Des Moines Water Reclamation Facility, Odor Control Project, Des Moines, IA. Task manager for odor dispersion modeling as part of an odor study and preliminary odor control alternatives design, for a 95 million gallon per day wastewater treatment plant in Des Moines, Iowa. Evaluated odor impacts from sludge digesters and handling activities, clarifiers, trickling filters, and other sources. Also provided consulting services for purchase and installation of an on-site meteorological monitoring tower, to be used in part for odor dispersion assessment.

Great Lakes Gas Transmission Company, Troy, Michigan. Developed and provided a one-day Prevention of Significant Deterioration/New Source Review permitting workshop to GLGT environmental staff.

Great Lakes Gas Transmission Company, Troy, Michigan. Provided dispersion modeling analysis of impacts from potential emergency venting operations for a segment of a large natural gas pipeline.

Hewlett-Packard, Boise, ID. As Air Quality task leader, provided technical oversight and QA/QC for dispersion modeling of criteria pollutant and air toxics emissions from a microelectronics production facility in Boise, Idaho.

Micron Technologies, Boise, ID. Provided technical oversight and QA/QC for air dispersion modeling of emissions from a microelectronics production facility in Boise, Idaho.

Marathon Ashland Petroleum LLC, St. Paul Park, MN. Provided technical guidance and quality assurance for a PSD permit application for addition of backup generators and compressors at a petroleum refinery in Minnesota. Provided PSD and Title V permitting technical guidance.

Monmouth County, New Jersey. Provided air dispersion and deposition (dry and wet) modeling in support of a health risk assessment and Prevention of Significant Deterioration of Air Quality (PSD) permit application for a proposed municipal waste combustor. Also provided QC for PSD pre-construction meteorological and air quality monitoring plans and review of monitoring data.

Municipal Energy Agency of Nebraska, Hastings, NE. Task leader for preparation of PSD air quality permit application, including BACT analysis, MACT evaluation, and dispersion modeling analysis, for addition of 220 MW coal-fired electric generating facility. Completed PM_{10} dispersion modeling analysis of regional sources to show ability to add new unit. Permit was issued in April 2004.

National Renewable Energy Laboratory, Navajo Generating Station Visibility Study, Page AZ. Under subcontract to NREL, for the Department of Interior, Mr. Liebsch managed the air quality and visibility components of an independent impacts study of potential additional NOx emissions controls on the 2250 MW coal-fired NGS. The project involved reviewing the emissions inventory, monitoring, and modeling results with respect to a potential retrofit of the NGS facility to further control NOx emissions. In collaboration with NREL staff, Mr. Liebsch presented the study findings to interested federal agencies in Washington DC.

Nebraska Public Power District, Beatrice, Nebraska. Air permitting technical lead for PSD permitting of 250 MW Combined-Cycle Electric Generation Plant. Provided technical direction for Best Available Control Technology (BACT) analysis and air quality dispersion modeling.

Nebraska Public Power District, Gerald Gentleman Station Units 1&2, Sutherland, NE. Project manager for preparation of BART analysis in accordance with EPA and Nebraska regulatory requirements and guidance, to evaluate technical feasibility of prospective emission control technologies (low-NOx combustion, wet and dry scrubbers, SNCR, SCR), the economic costs and environmental impacts of applying these technologies to the units, and the visibility improvements to be gained for each technically feasible technology (based on CALPUFF modeling of each option).

New England Fertilizer Company, Blue Lake WWTP Biosolids Permitting, Shakopee, MN. Provided technical direction and QA/QC for dispersion modeling of odor emissions from a wastewater sludge/biosolids drying facility located at a wastewater

treatment plant in Minnesota. Also, served same role for preparation of a Title V air emissions operating permit application for the biosolids drying facility.

New England Fertilizer Company, West Palm Beach Biosolids Facility Design and Permitting. Reviewed permit applications prepared by another firm and provided recommendations on permit limits and other conditions for emissions of criteria pollutants and mercury. Also provided review and recommendation of stack design options to demonstrate compliance with air quality standards through dispersion modeling.

Omaha Public Power District, Nebraska Public Power District, City of Grand Island, Hastings Utilities, NE. Managed project to complete CALPUFF dispersion modeling for six coal, oil & gas-fired utility plants in Nebraska, to estimate Class I area visibility impacts, and demonstrate whether each facility was exempt from Best Available Retrofit Technology (BART).

Omaha Public Power District, Nebraska City Station Unit 2, Nebraska City, NE . Managed the air emission permitting under Prevention of Significant Deterioration (PSD) rules for the Omaha Public Power Districts new 660 MW coal fired power plant at Nebraska City, Nebraska. Tasks included meteorological and monitoring data assessment, multi-state emission inventory for dispersion modeling purposes, dispersion modeling, Best Available Control Technology (BACT), and additional impact (including visibility) analyses for development of a complete permit application. Prepared a case-by-case Maximum Achievable Control Technology analysis with respect to mercury and other hazardous air pollutant emissions. Negotiated permit conditions and responded to comments made during the public comment period, leading to permit issuance in March 2005. Participated in EPC contract development and review for consistency with air permit requirements.

Omaha Public Power District, Cass County, NE. Managed preparation of Prevention of Significant Deterioration (PSD) permit application for installation of two nominal 173 MW simple-cycle combustion turbines in Nebraska. Application included dispersion modeling, Best Available Control Technology (BACT), and additional impact (including visibility) analyses.

Omaha Public Power District, Sarpy County, NE. Prepared PSD air quality permit applications, including BACT analysis and dispersion modeling analysis, for addition of 200 MW capacity addition (in two phases) to combustion turbine electric generating facility in Nebraska. Evaluated continuous emission monitor (CEM) requirements under CAAA acid rain regulations (Title IV).

Omaha Public Power District, Omaha, NE. Prepared request for policy determination, along with technical arguments, to USEPA regarding non-applicability of PSD/New Source Review rules for an increase in hours of operation at the Jones Street Station oil-fired simple-cycle combustion turbine electric generating facility. Received USEPA agreement on non-applicability of PSD/NSR.

Omaha Public Power District, Nebraska City Station Unit 1, Nebraska City, NE. Project manager for preparation of BART analysis in accordance with EPA and Nebraska regulatory requirements and guidance, to evaluate technical feasibility of prospective emission control technologies (low-NOx combustion, wet and dry scrubbers, SNCR, SCR), the economic costs and environmental impacts of applying these technologies to the unit, and the visibility improvements to be gained for each technically feasible technology (based on CALPUFF modeling of each option).

Pinellas County, Florida, Waste-to-Energy Facility. Provided technical support for construction and operating permitting and compliance activities for a 3000 ton/day waste-to-energy facility, producing approximately 75MW of electrical power.

Sabin Metal Corporation, Williston, ND. Provided project management and technical guidance for an Air Toxic and criteria pollutant analysis, on multiple projects, for a metals recycling facility in North Dakota. Analysis included over 20 metals and organic compounds.

Sauder Woodworking, Archbold, OH. Provided regulatory review, dispersion modeling, and permit application (including PSD) assistance for several projects at a woodworking facility and associated support facilities.

Solid Waste Authority of West Palm Beach, FL. Provided technical direction and QA/QC for revising and updating a Florida Title V permit application (originally submitted by another consultant) for a municipal waste incinerator facility and associated landfill.

Southeastern Industrial Land Services, Emerson, GA. Task leader for an odor study as part of a landfill siting feasibility study. The odor study consisted of estimation of odor emission rates and dispersion modeling to evaluate intensity of potential odor impacts on surrounding land uses.

Spokane Southside Landfill, Spokane, WA. Task leader for air dispersion analysis using EPA's AERMOD model, for converting from a flare to a biofilter as the emission control device for collected landfill gas. Analyzed potential impact of vinyl chloride with respect to Washington air toxics requirements, and hydrogen sulfide emissions, as a surrogate for odor.

Sunflower Electric, Holcomb Station, Kansas. Task leader for CALMET/CALPUFF dispersion modeling analysis of proposed power plant expansion to include either two or three new 700 MW subbituminous coal-fired electric generating units. Directed dispersion modeling analysis to evaluate visibility and pollutant concentration impacts on Class I national parks, wilderness areas and wildlife refuges.

Trigen, District Energy of St. Paul, MN. As a consultant to Trigen, provided technical guidance for Best Available Control Technology (BACT) analysis, regulatory evaluation, and QC for preparation of a PSD permit application for a wood and oat hull-fired cogeneration boiler in downtown St. Paul, Minnesota.

Union County, New Jersey, Waste-to-Energy Facility. Assisted in preparation of a modified PSD permit application, including dispersion modeling, to incorporate malfunction, startup, and shutdown conditions in the permit for a municipal waste combustor.

Western Lake Superior Sanitation District, Duluth, MN. Provided technical guidance and QC for preparation of a major amendment to a Title V air emission operating permit for a wastewater treatment plant in Duluth, Minnesota. Plant included digesters, boilers fed on digester gas, and a combined refuse derived fuel (RDF) and sewage sludge incineration unit.

NEPA & Transportation

Rail & Multimodal

Alaska Railroad Corporation, Ship Creek Intermodal Transportation Center, Anchorage, Alaska. Mr. Liebsch served as Task Leader for analysis of air quality impacts due to construction of a new railroad passenger terminal and parking garage. Mr. Liebsch performed analysis of parking garage emissions and directed air quality analysis of motor vehicle emissions at nearby intersections.

Alaska Department of Transportation and Public Facilities, Environmental Impact Statement for Whittier Highway/Tunnel Project, Whittier, Alaska. Mr. Liebsch

provided estimation and dispersion modeling of vehicle and locomotive emissions from highway links and tunnel openings, using EPA locomotive emission factors, MOBILE5A emissions model, and CALINE4 dispersion model. He prepared an air quality technical report and used MOBILE5A to estimate emissions of pollutants for purposes of ventilation assessment of a 2.5-mile tunnel to be used jointly by trains and motor vehicles.

Amtrak, Los Angeles Union Station Run-Through Tracks PSR, Los Angeles, CA. Mr. Liebsch was responsible for directing the air quality analysis and to providing definition of scope and technical guidance toward completion of the air quality study section of the EIR. Developed alternatives and evaluated the feasibility of extending bi-directional running tracks from the existing stub-end yard configuration at Union Station, across U.S. 101, reconnecting to the existing mainline along the Los Angeles River. Six alternatives were identified, from which a single preferred alignment was selected. The project included preliminary engineering and cost estimating, as well as a Preliminary Environmental Assessment and preparation of a Project Study Report.

BNSF Railway, Kansas City Intermodal Facility, Edgerton, KS. Air quality technical leader for development of air quality related information to support an Environmental Assessment (to be prepared by the Army Corps of Engineers) to evaluate impacts of construction and operation of large freight intermodal facility in the Kansas City metropolitan area. The facility would facilitate transfer of freight between trains operated on BNSF's primary intercontinental corridor and trucks bound for local/regional destinations.

Department of Sanitation of New York City, Solid Waste Management Plan EIS, New York, NY. Provided air quality technical direction for emissions calculations and dispersion modeling of mobile and stationary sources associated with solid waste transfer stations, and shipping container transfer to barges and rail cars. Air quality analysis included assessment of impacts from criteria pollutants, air toxics pollutants, and odorous emissions.

Detroit River Tunnel Partnership, Detroit, MI. Task leader for air quality impact analysis as part of an environmental assessment. Proposed project involved conversion of existing rail tunnel to truck use and construction of a new, double-tube rail tunnel under the Detroit River between Detroit, Michigan and Windsor, Ontario. Oversaw estimation of locomotive and truck in-tunnel emissions and use in dispersion modeling analysis using ISCST3 model. Also oversaw use of MOBILE5 emissions estimates and CAL3QHCR dispersion estimates to evaluate carbon monoxide impacts from highway intersections.

IBI Group, California High-Speed Rail EIR/EIS, Los Angeles, CA, San Diego, CA. Mr. Liebsch was responsible for providing air quality technical direction and quality control review for the analysis of pollutant emissions associated with locomotive traffic. HDR provided environmental, general engineering and technical support for a proposed high-speed rail (HSR) system within Southern California that would be a part of a proposed statewide HSR network stretching between the northern and southern portions of the state.

New York City Economic Development Corporation, Staten Island Transfer Station Rail Access, New York, NY. Air quality task leader for railroad vs. truck transport emissions analysis of solid waste to be collected at a transfer station. Directed analysis to compare truck and rail-related emissions from transporting solid waste from transfer station to distant disposal facilities, in support of an application to obtain federal funding under the Congestion Mitigation of Air Quality (CMAQ) program for development of rail infrastructure.

San Jacinto Rail, Limited/BNSF, Bayport Industrial Build-In, Pasadena, TX. Air quality technical leader for development of air quality related information to support an Environmental Impact Statement (prepared by the Surface Transportation Board) to evaluate impacts of construction and operation of a 12-mile rail line to serve an industrial area southeast of Houston, Texas. Assessed estimated air emissions increases in comparison to General Conformity thresholds due to ozone NAAQS non-attainment status of Houston area.

Surface Transportation Board, CN - EJ&E Acquisition EIS. Air quality and climate change task leader for environmental analysis, under Surface Transportation Board and NEPA regulations, of major railroad acquisition project in Chicago metropolitan area. Quantitative air quality analyses included dispersion modeling, using the MOBILE6.2 emission model and the CAL3QHC and AERMOD dispersion models, to estimate air quality impact of traffic at rail-highway at grade crossings, moving locomotives and idling locomotives. In addition, the analysis included an estimate of region-wide net emissions changes for the proposed action.

Surface Transportation Board, Conrail Acquisition Environmental Impact Statement, Washington, D.C. Air quality task leader for environmental analysis, under Surface Transportation Board and NEPA regulations, of major railroad merger proposal involving railroad facilities in 24 states. Used MOBILE5A model for estimation of CO, NOx, and HC emissions from vehicles. Oversaw emissions netting analyses in over 100 non-attainment and maintenance area counties in the eastern US. Directed analyses of air quality impacts from locomotive and motor vehicle (intersection) emissions scenarios.

Washington State Department of Transportation, Rail Office, Kelso-Martin Bluff Rail Corridor. Air quality task leader for Environmental Impact Statement to add a third rail to an existing 20-mile existing rail corridor serving both freight and passenger rail transportation needs. Estimated emissions from construction activities based on EPA emission factors, and for construction-related truck traffic, using EPA MOBILE5b emissions model.

Washington State Department of Transportation, Rail Office, Vancouver Rail Yard Bypass, Vancouver, WA. Air quality task leader for analysis of impacts due to re-configuration of an existing rail yard, as part of an Environmental Impact Statement. Directed analysis to estimate impacts at nearby residential areas due to emissions of particulate matter below 2.5 microns in diameter ($PM_{2.5}$) from locomotives that would travel on a yard bypass rail segment.

Washington State Department of Transportation, Rail Office, Point Defiance Bypass, WA. Provided air quality technical direction for preparation of an Air Quality Technical Report in support of an Environmental Assessment (EA). The EA was required to all federal approval of funding for a combined freight and commuter rail corridor to improve public transit in the southern portion of the Seattle-Tacoma metropolitan area.

Highway

Ada County Highway Department, Locust Grove Road, Boise, ID. As air quality technical leader, performed MOBILE5b emissions modeling analysis for major arterial, with overpass on I-84 west of Boise, Idaho. Provided technical oversight and QA/QC for dispersion modeling analysis to evaluate carbon monoxide (CO) impacts from two signalized intersections on Locust Grove Road.

Alaska Department of Transportation and Public Facilities, East Anchorage Corridor Study. Performed carbon monoxide (CO) emissions analysis of over two dozen transportation corridor alternatives for eastern Anchorage, based on output of TransCAD software, combined with MOBILE5b (COLD-CO Version) emission factors.

Alaska Department of Transportation and Public Facilities, Abbott Road Project Environmental Assessment, Anchorage, AK. Task leader for transportation air quality conformity analysis. Pursuant to State Implementation Plan (SIP) and NEPA requirements, performed MOBILE5A emissions modeling, QA/QC review of CAL3QHC dispersion modeling, and preparation of air quality report.

Arizona Department of Transportation, Pima Freeway Project, Segment 9B, Phoenix, AZ. Task leader for air quality impact analysis as part of an Environmental Impact Statement. Performed MOBILE5A emissions modeling, QA/QC review of CAL3QHC dispersion modeling and preparation of air quality technical report. Provided expert witness testimony in 2001 regarding air quality impacts on behalf of ADOT, after project implementation, contributing to jury decision in favor of ADOT, with no damages awarded to plaintiff.

Arizona Department of Transportation, 202L/US60 Traffic Interchange, Phoenix, AZ. Task leader for air quality impact analysis of a major flyover interchange on the Red Mountain Freeway. Performed MOBILE5B emissions modeling, QA/QC review of CAL3QHC dispersion modeling and preparation of air quality technical report.

Boise International Airport, Terminal Redevelopment and Roadway Improvement Project, Boise, ID. Project technical leader for transportation and general conformity air quality analyses as required under federal air quality rules and NEPA.

Department of Sanitation of New York City, Commercial Waste Management Study, New York, NY. Air quality technical leader for multi-facility impact analyses, including both stationary source and mobile source (intersection) dispersion modeling. Impact analyses included criteria pollutants (including $PM_{2.5}$) and toxic air pollutant analysis in accordance with New York City Department of Environmental Protection and New York State Department of Environmental Conservation policies.

Minnesota DOT, Cayuga and Maryland Avenue Bridge Replacement. Provided technical direction and QA/QC for the Mobile Source Air Toxics (MSAT) air quality analysis following Federal Highway Administration guidance. Emission factors for multiple MSATs were generated using MOBILE6.2 emission factor model by speed and vehicle type for comparison of MSAT emissions from traffic for future (2030) Build and No-Build conditions. The emissions analysis was conducted for the highway network covering all counties in the greater Minneapolis-St. Paul metropolitan area.

New York City DOT, Nostrand and Rogers Avenues, Bus Rapid Transit, NY. Air quality task leader for analysis of BRT project impacts on several intersections in Brooklyn, NY. Analysis used EPA's MOBILE6.2 emissions model and CAL3QHC dispersion model to estimate carbon monoxide (CO) emissions impacts.

New York City DOT, 1st and 2nd Avenue Manhattan, Bus Rapid Transit, NY. Air quality task leader for analysis of BRT project impacts on several intersections in Manhattan, NY. Analysis used EPA's MOBILE6.2 emissions model and CAL3QHC dispersion model to estimate carbon monoxide (CO) emissions impacts.

Utah Department of Transportation, Southern Corridor EIS, St. George, UT. Performed MOBILE5b emissions modeling, CAL3QHC dispersion modeling, preparation of air quality technical report, and preparation of EIS sections relating to air quality impact for a proposed new freeway corridor.

West Virginia Department of Transportation, West Virginia Route 2 Widening, I-77 to SR31, Parkersburg, WV. Task leader for air quality impact analysis. Performed MOBILE5A emissions modeling, QA/QC review of CAL3QHC dispersion modeling and preparation of air quality technical report.

Professional Endeavors

HDR Engineering, Inc.
Vice President, Senior Air Quality Scientist
July 1990 – present

Charter Senior Professional Associate

Recognizing that professionalism, superior technical development, and individual accomplishments are essential to its success, HDR grants this title to extraordinary professional staff who, through their creative efforts and dedicated commitment to personal excellence, have attained exceptional levels of technical and professional achievement.

St. Cloud State University
Adjunct Professor of Meteorology
September 1992 - May 1998 (part-time)

Martin Marietta Energy Systems, Inc.
Oak Ridge National Laboratory
Associate Scientist
November 1987 - June 1990

North Dakota Department of Health
Meteorologist & Environmental Scientist
March 1981 - October 1987

Selected Publications & Presentations

Liebsch, E. J. and M. G. Roberts 2013. Status of Air Quality and Solid Waste Rules Affecting Utilities. Presented at Rocky Mountain Electrical League, Power Supply Planning and Operations Conference, Denver, Colorado, March 7, 2013.

Liebsch, E., J. 2012. Major and Area Source Boiler Rules and Energy Assessments, Presented to DoD Air Managers Roundtable, Atlanta, GA, May 2-3, 2012.

Liebsch, E., J. 2011. Air Regulatory Impacts on the Coal Industry. Presented to American Coal Council, Coal Market Strategies Conference "Navigating the Bull & Bear of Today's Coal Industry," Colorado Springs, CO, August 22-24, 2011.

Liebsch, E. J. and M. L. Wollschlager 2011. Regulatory Update on Air Quality and Solid Waste Issues Affecting Utilities. Presented at Rocky Mountain Electrical League, Power Supply Planning and Operations Conference, March 3-4, 2011, Denver, CO.

Liebsch, E. J., S. P. Zilka, and J. F. Henz 2009. Potential Impacts of Climate Change on US Utility Infrastructure and Electricity Demand. Electric Utilities Environmental Conference, Feb. 1-4, 2009, Phoenix, AZ.

Liebsch, E. J. 2009. Air Emissions Regulatory Update for Utilities. Presented at Rocky Mountain Electrical League, Generation Conference, Denver, Colorado, June 10, 2009.

Liebsch, E. J., J. Morton, and David Seep 2007. Project Implementation and Air Quality Conformity Issues for Nonattainment Status Transitions. Presented at Railroad Environmental Conference, University of Illinois, Urbana-Champaign, IL. Oct. 23.

Liebsch, E. J., E. A. Grimm, and S. P. Zilka 2007. CALPUFF Analysis of Regional Haze Retrofit Options. Paper No. 561. Presented at 100th Annual Meeting of Air & Waste Management Association, Pittsburgh, PA, June 25-28.

Liebsch, E., J. 2007. Potential Climate Change Impacts on Upper-Midwest Utilities. Presented to Rural Electric Management Association, Duluth, Minnesota, September 27, 2007.

Liebsch, E. J. and M. K. Dunbar 2005. Clean Air Mercury Rule (CAMR): Implications for Utility Units Firing Powder River Basin Coal. Electric Energy, Issue 2, published by the Rocky Mountain Electrical League.

Liebsch, E. J. and E. A. Grimm 2005. Comparison of ISCST3 and AERMOD Results for Fugitive Dust Sources. Paper No. 625. Presented at 98th Annual Meeting of Air & Waste Management Association, Minneapolis, Minnesota, June 21-24.

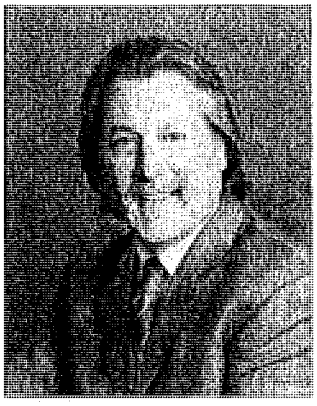
Liebsch, E. J. and D. Grennan 2005. Update on New Source Review and Equipment Replacement. Presented at Rocky Mountain Electrical League, Generation Conference, Power Plant Improvements and New Source Review, Denver, Colorado, January 27, 2005.

Liebsch, E., J. 2004. Clear Skies Update, presented at 55th Annual Generation Conference, Association of Rural Electric Generating Cooperatives, St. Paul, Minnesota, June 13-16.

Liebsch, E. J. and S. P. Zilka 2001. Evaluation of AERMOD in a Complex-Terrain, Shoreline Environment. Paper No. 321. Presented at 94th Annual Meeting of Air & Waste Management Association, Orlando, Florida, June 25-28.

Liebsch, E. J. 2000. Best Available Control Technology (BACT) Implementation Issues. Paper No. 00-360. Presented at 93rd Annual Meeting of Air & Waste Management Association, Salt Lake City, Utah, June 18-22.

Campbell, S. A., K. Jones, E. Liebsch, K. Winges, and K. Richmond 1992. Improved Methods for Wet Deposition Modeling for Waste Combustion Risk Assessment. Paper No. 92-84.11. Presented at 85th Annual Mtg. of Air & Waste Mgmt. Assoc., Kansas City, MO, June 21-26.



Michael Musso

Project Manager

EDUCATION
Master of Science, Public Health, Columbia University, 2007

Master of Science, Environmental Engineering, Rutgers University New Brunswick, 1996

Bachelor of Engineering, Civil Engineering, Villanova University, 1991

ACKNOWLEDGEMENTS
HDR Professional Associate

REGISTRATIONS
Professional Engineer: New York

TRAINING
40-hr OSHA Training for Hazardous Materials Waste Activities;
8-hr Health and Safety Supervisor Training;
RBCA for Petroleum and Non-Petroleum Chemicals (3-day course at ASTM Headquarters);
NJDEP Subsurface Evaluation Certification for Underground Storage Tanks (USTs);
5-day Short Course: Hierarchical/Multi-objective Approach in Water Resources Planning and Management (University of Virginia); Program on Addressing Mold and IAQ Problems (1-day short course);
MCACES, 2nd Generation

Mike Musso is a Senior Project Engineer with over 20 years of experience in environmental engineering, consulting, and regulatory compliance. He has had hands-on experience with managing site investigations, human health risk and exposure assessments, and remedial design projects, including those with chemical and hazardous and solid waste management operations at industrial facilities. Mike has conducted several remedial investigation/feasibility studies (RI/FSs, including risk assessments; CERCLA and NYSDEC guidance) for soil, sediment, surface water, air, and groundwater investigations and remediation projects which have entailed the identification, screening, and detailed cost estimating of viable alternatives. He has developed detailed conceptual designs and project life cost evaluations for numerous projects.

As part of his technical responsibilities at HDR, Mike has performed baseline human health risk assessments and exposure pathway analyses for industrial, landfill, and proposed re-development sites. His expertise relating to exposure pathway analyses and conceptual site models are often utilized at the inception of many types of projects, and his input is sought in helping determine possible remedial requirements and associated costs/timeframes. He has reviewed and statistically analyzed data from several environmental media, including soil, groundwater, sediment, surface water, air, and soil gas. Portions of risk assessments on which Mike has worked have included the evaluation of vapor intrusion potential using Johnson & Ettinger (EPA) modeling and risk-based corrective action (RBCA) approaches. In addition, he has researched and summarized toxicological profiles (carcinogenic and noncarcinogenic effects of multiple contaminants including VOCs, SVOCs/PAHs, metals, pesticides/PCBs), and is familiar with "equivalence factors" used in assessing PAHs and dioxin. Depending on the level of effort required and contemplated end use of properties, Mike conducts qualitative or quantitative exposure assessments for different future use scenarios at various sites. He has developed site-specific risk-based screening levels and action levels for remediation at several sites based on the acceptable hazard index and carcinogenic risk ($1x10^{-4}$ to $1x10^{-6}$).

Mike has a working knowledge of toxicological and public health aspects of chemical development and use, along with an understanding of applicable state and Federal regulations. He is very familiar with the development and oversight of health and safety programs, and he has much knowledge in field procedures and environmental monitoring activities. He has collected soil, groundwater, and air samples at numerous sites and assembled soil boring, test pit, and monitoring well logs. Mike has prepared sampling methodologies, site characterization reports, and remedial action work plans (including Voluntary Cleanup and BCP projects in New York State, and Act 2 Land Recycling Program sites in Pennsylvania), and has been involved with the preparation of remedial design specifications and contract documents. Mike has also conducted Phase I environmental site assessments at numerous sites in New York and New Jersey. He is very familiar with the development and oversight of health and safety programs, and he has much knowledge in the theory and field procedures associated with industrial hygiene and environmental monitoring activities.

(MII) Basic Training (3-Day course given by Project Time & Cost, Inc.); November 2008
Ecological Risk Assessment: Practice and Protocols (April 2008), Rutgers University (2-day course)

INDUSTRY TENURE
23 years

HDR TENURE
16 years

LECTURE EXPERINECE
NYWEA: Persistent, Bioaccumulative, and Toxic Compounds (PBTs). December 12, 2001.

NYWEA/AWWA: Human Health
Aspects of Pathogenic Protozoans Emphasizing *Cryptosporidium.* February 28, 2001.

Rockland County Municipal Planning Federation. *Cell Tower symposium.* November 26, 2007.

2009 Conference on Design and Construction Issues at Hazardous Waste Sites. *Overcoming Project Cost Uncertainties through Risk Analysis and Management Tools.* April 14, 2009.

2010 Green Remediation Conference (Amherst, MA). *Transparency in Selection of Sustainable Remedies.* June 17, 2010.

ACADEMIA
Adjunct Instructor, Columbia University (2009 – present): Mailman School of Public Health; School of International and Public Affairs. *Risk Assessment & Toxicology*

Topics: Arsenic (cost-benefit of treatment and

RELEVANT EXPERIENCE

Site 32 HHRA – Treasure Island
San Francisco, CA
Mike performed baseline human health risk assessments and exposure pathway analyses for this former U.S. Navy site in compliance with Navy, State (OEPA) and USEPA requirements (RAGS). The work was conducted on behalf of the U.S. Navy for an approximate 4.5 acre parcel ("Site 32") on Treasure Island (former Naval Base located in San Francisco, California). Mike evaluated exposure scenarios for adult and child residents along with commercial/industrial workers and construction workers for different environmental media. He characterized levels of cancer/non-cancer risks for all identified human receptors in current and future land use scenarios. Dermal, ingestion, and inhalation pathways were evaluated. Inhalation pathway assessments including the implementation of vapor intrusion and open trench volatilization models. Mike also conducted the overall uncertainty analysis for this HHRA. The TI Site 32 risk assessment work will be used in the ultimate remedy selection process for appropriate risk management at the site.

Grand Traverse Overall Supply site (GTOS) HHRA – Michigan, USEPA Region 5
Mike performed QA/QC reviews on several aspects of the Sullivan risk assessment. He assisted Sullivan with confirming exposure pathways to be included in HHRA. He formulated questions and clarifications to USEPA Case Manager. Mike reviewed portions of HHRA report text and tables for accuracy and presentation. He helped develop risk models for surface water ingestion (recreators) and human fish ingestion.

NYCDEP, Water Quality Risk Assessments for Kensico Action Plan
Mike scoped and conducted four (4) water quality risk assessments for land uses in the Kensico watershed. The studies were conducted on behalf of NYCDEP to support filtration avoidance determinations. Focused assessments included: Westchester County Airport (general audit of environmental practices, chemical uses, and stormwater runoff); Turf Management practices in a specific sub-basin (administer residential chemical use survey, interpret data, coordinate conservative model for the herbicide 2,4-D); and an office park in the watershed (audit of operations and compliance).

Lehigh Valley Industrial Park (LVIP)
MIke supported site re-development activities at the LVIP campus by interpreting environmental data, and completing land use reviews and human health exposure assessments. If required, quantitative analyses were provided. The re-development proposals were reviewed by PADEP under the Act 2 Land Recycling Program and USEPA Region 3.

USEPA Region 2 RAC – Gowanus Canal RI/FS
Brooklyn, NY
Mike served as HDR's project manager for the Remedial Investigation/Feasibility Study (RI/FS) for the Gowanus Canal Proposed Superfund Site under the Region 2 Remedial Action Contract. The Gowanus Canal is a 1.8 mile controlled waterway that has been the receiving water of centuries of industrial, stormwater, and combined sewer overflow (CSO) pollution. As part of the RI activities, the following field investigations were conducted:

- Bathymetric survey

risk reduction). 2001, 2002; 2010.

Risk Assessment Course: Overview of Risk-Based Corrective Action (RBCA) 2000.

- Sediment sampling (to support risk assessment and remedy screening)
- Surface water sampling
- Air sampling
- Fish and crab sampling
- Sediment core sampling
- Sampling at CSOs and other outfalls
- Groundwater sampling and water level measurements

USEPA Region 2 RAC – Peninsula Boulevard RI/FS
Nassau County, NY
Mike served as the project manager for the Peninsula Boulevard Groundwater Plume Superfund Site in Nassau County, NY. Aspects of the project have involved human health risk assessment, screening-level ecological risk assessment (SLERA), community involvement, and coordination/review of field activities. Mike reviewed alternate groundwater sampling approaches, such as multilevel wells and continuous multi-channel tubing (CMT) wells.

Shenandoah Road Superfund Site – Risk Assessment
HDR worked closely with Groundwater Sciences Corp. (GSC) to complete human health and ecological risk assessments for the client. MIke was the lead on the baseline human health risk assessment (BHHRA) deliverable, and also assisted with the Screening-Level Ecological Risk Assessment (SLERA) for the site. The BHHRA included statistical analysis of data; identification of COPCs; establishment of exposure parameters; evaluation of toxicological parameters for COPCs (including mutagens); risk characterization; and uncertainty analysis. HDR completed sediment and surface water sampling and data interpretation for an area downgradient of the source, where groundwater was noted to be daylighting. Mike participated in project meetings with the USEPA, NYSDEC, and the Client, and prepared data summaries against established human health and ecological benchmarks.Mike also performed community outreach by meeting with homeowners to discuss technical information on the site.

New Cassel Industrial Area (NCIA) – Human Health Risk Assessment for Off-Site Groundwater
Mike conducted a human health risk assessment on behalf of a work assignment from the USACE to evaluate off-site (downgradient) groundwater and justify remedial action. As part of the HHRA, groundwater data was evaluated in terms of aquifer and sampling methods, and statistical evaluation was performed to identify target COPCs (ProUCL software). Multiple exposure pathways were evaluated, including direct ingestion, dermal contact, and inhalation (via showering / bathing, and qualitatively via a potential vapor intrusion pathway). The HHRA was completed in accordance with USEPA guidance.

Ace Insurance – Claim Reviews
MIke is managing the tracking and technical review of environmental claims submitted by a retail gasoline company that includes more than 150 gasoline station sites in the Northeastern United States. Claim reviews include assessment of the nature and timing of spills/releases; review of investigatory and re-medial costs in terms of reasonableness and appropriateness; and verification of State agency directives in terms of remedial programs for USTs and remedial impacts.

The Related Companies
Staten Island, NY
Mike performed human health exposure assessments for baseline condition (abandoned oil refinery) and future use scenarios (NASCAR Raceway, Open Space park, Retail, and Warehousing). Identification of contaminates of concern in soil, groundwater, and soil gas, using project-specific standards and guidance (soil: NYSDEC RSCOs, EPA RBCs, EPA draft Vapor Intrusion Guidance; groundwater: NYS Class GA standards, EPA draft Vapor Intrusion Guidance; soil gas: EPA draft Vapor Intrusion Guidance and modeling based on J&E, actual geology, and anticipated attenuation factors given different end uses). Mike conducted and reviewed statistical calculations of soil background levels while identifying potential contaminants of concern (PCOCs) for the project. He assessed exposure frequencies and durations on on-site workers (field, office), spectators and other recreators (based on contemplated race events), and retail customers. Literature, raceway statistics, and EPA Exposure Factors handbooks were consulted to develop mean exposure scenarios.

The findings from the exposure assessments were presented to NYSDEC Region 2 and used to prescribe hot-spot soil remediation, vapor control in buildings, and to evaluate final ground cover options. Mike was involved in the conceptual design and costing of methane control alternatives along with VOC vapor intrusion options (vapor barriers, active/passive sub-slab venting).

Environmental Services including Operation, Maintenance and Monitoring (OM&M) of on-site water treatments system (Private Client; Active Private School Site, NYC – Ongoing)
New York, NY
As part of a voluntary cleanup project (NYSDEC Region 2), Mike has managed all environmental items during property transfer and construction of a new private school in Manhattan. He collected split samples and performed oversight of the PRP agents, and evaluated the need for vapor intrusion control due to residual contaminant levels in the subsurface. He was also asked to participate at school board meetings and community board meetings in Manhattan on behalf of the project. As part of on-going activities since the school construction was completed, Mike has provided design and OM&M services to an active water treatment unit at the site. He has obtained all necessary NYC discharge permits on behalf of the client and actively manages OM&M activities. Environmental auditing and exposure assessment continue at the school (indoor air testing with Summa canisters [TO-15 analysis]; HVAC reviews), under the Site Management Plan developed by Mike.

New York City School Construction Authority (NYCSCA) Environmental Services Term Contract
New York, NY
Mike served as program manager for the NYCSCA Environmental Services term contract. As part of his responsibilities, he coordinated over 20 projects throughout the New York City Boroughs, ranging from Phase I/II due diligence and property assessments, to vapor intrusion studies, contractor specification reviews, conceptual design and screening of remediation options, remedial action review and oversight, and public participation/risk communication. Mike was responsible for all staffing and scheduling, and created project scopes and budgets. He also participated at public hearings on behalf of NYCSCA.

Mirant, Lovett Power Generating Facility Decommissioning Project
Stony Point, NY
Mike is serving as the project manager for numerous "on-call" tasks to support environmental review and compliance during the 2.5-year demolition project. He is working closely with the client representatives, demolition contractor, and the NYSDEC. Tasks on which Mike has directed or been involved with have included: RCRA inventory of hazardous materials (pre-demo); Army Corps of Engineers permit applications for in-water work; sampling of tiles to support Beneficial Reuse of demolition materials as fill (obtained approval from NYSDEC); reviewed existing environmental data and prepared range of remedial options and associated costs; WWTP decommissioning; preparation of stormwater pollution prevention plan (SWPPP), including updates an modifications based on evolving site conditions and evaluation of SWPPP measures; prepare Site Characterization Work Plan and investigatory approaches to assess subsurface contamination.

Mirant, Bowline Unit 3 SWPPP
Haverstraw, NY
Since 2004, Mike has served as the engineer of record for the inspection work associated with the stormwater pollution prevention plan (SWPPP) notice of intent (NOI) filed for construction of Unit 3. He has reviewed and documented changes in site conditions, and approved / organized inspection reports in accordance with NYS regulations for stormwater management.

Dynegy, Acute Effluent Toxicity Testing (Danskammer Facility)
Newburgh, NY
As per the SPDES permit requirements for the Danskammer facility, Mike is managing an 12-month acute toxicity monitoring program. The program includes the assessment of potential impacts of specific effluent flows on two species: Ceriodaphnia dubia and Pimephales promelus. Mike has coordinated field sampling methods and laboratory analysis of acute toxicity. He has also reviewed site treatment processes, outfall flows, and storage of the flows of interest (coal pile runoff, metals wastes, and leachate from a solid waste management area). Mike is also interpreting results and will prepare a detailed report for NYSDEC.

United Water, Environmental Impact Statement for Proposed Desalination Plant along Hudson River
Haverstraw, NY
Mike has been involved in creating and reviewing chapters of the EIS for the proposed facility, alternate site, and "No Action" scenarios. His focus area for the EIS is the topic of Public Health, and how the implementation, construction, and long-term maintenance can impact various human health receptors.

NYSDEC New Cassel Industrial Area
Long Island, NY
Mike prepared qualitative human health exposure pathway analyses under NYSDEC review. These analyses consisted of identifying site-specific contaminants of concern and potential exposure points for human receptors (direct contact, drinking water). Mike developed remedial investigation/feasibility studies (RI/FSs), including conceptual designs of soil, dry well, and groundwater remediation systems, cost estimates, data analyses, and reports. Remedial alternatives that were identified and assessed (based on feasibility, cost, and other CERCLA parameters) included: Soils- excavation + off-site disposal; soil vapor extraction (SVE); monitored natural attenuation (MNA); Groundwater – air stripping/soil vapor

extraction (AS/SVE); In-Well circulation/vapor stripping systems (emerging technology); pump and treat with activated carbon, and MNA.

NYSDEC Multi-Site Preliminary Assessments
As project manager for eight Preliminary Site Assessment (PSA) sites under a NYSDEC work order, Mike managed all field activities, personnel, and subcontractors related to the work. Sites included a mix of industrial facilities with various histories of chemical uses and discharges, including freons, PCE/TCE (solvents and dry cleaning fluids), pesticides (from on-site manufacturing), metal plating, and illegal solid waste disposal. Mike maintained close contact with the NYSDEC case manager, coordinated site access for field work, and prepared the final PSA decision-making forms and reports detailing the findings, conclusions, and recommendations.

Standby State Superfund Contract (D006129) - Inspection and Monitoring (I&M) of Subslab Depressurization (SSD) Systems
Statewide, NY
Mike is the project manager for this statewide SSD System I&M program that consists of inspecting and monitoring over 370 systems across the State. He is responsible for managing major subtasks, including work plan development, routine I&M, non-routine maintenance, annual reporting, and assistance with NYSDEC data transfer and databasing. He coordinates and manages public communication, subcontractor procurement and management, staff training, and detailed financial tracking. The work includes tracking and reporting success rates of I&M tasks (e.g., success rates of obtaining access to homes; completion of recovery system repairs), and on program financials.Mike prepares periodic program updates to NYSDEC. The total project cost is $500K.

Standby State Superfund Contract (D006129) - Feasibility Study: Former Raeco Products Site,
Rochester, NY
Mike is currently managing the feasibility study for the former Raeco Products site. The project has entailed a detailed review and interpretation of all pre-existing environmental data; identification of major areas of concern (AOCs) for VOC, SVOC, and metals contaminants in surface soil, subsurface soil, soil gas / indoor air, and groundwater; identification and screening of viable remedial alternatives for the contaminants and media of concern; development of conceptual costs for remedial alternatives; assistance with Proposed Remedial Action Plan (PRAP) development. The total project cost is $50K.

NYSDOT Mineola Property Assessment and Remediation
Long Island, NY
Mike's responsibilities on this project involved supervision of the subsurface investigation (geophysical surveys plus soil and groundwater sampling at an active commercial facility) and subsequent data interpretation. He prepared budget estimates and managed field activities, HDR staff, and subcontractors during site investigation and UST removal activities. Mike also completed a human health exposure assessment that was integral to spill closure from NYSDEC Region 1. Potential impacts to groundwater were a key issue, as site over the local sole source aquifer.

NYSDOT Bronx River Greenway and UST Removal Evaluation
New York, NY
Mike's responsibilities in these projects involved supervision of the subsurface investigations and subsequent data interpretations of several properties. He prepared budget estimates and managed field activities, personnel, and subcontractors. He also coordinated with various stakeholders such as property owners and NYC government agencies.

NYSDOT Annsville Circle Assessment and Remediation
Westchester County, NY
For this investigation and remediation at a future NYSOPRHP kayak launch facility in Westchester County, Mike coordinated geophysical surveys and subsurface investigations. Based on data interpretations and meetings with project stakeholders, Mike prepared remediation specifications and bid documents which entailed source removal, soil erosion and sediment control, transportation and disposal of contaminated soil, oxygen releasing compound (ORC®) application, and site restoration. He managed field activities, personnel, and the remediation contractor.

Former Salina Landfill Human Health Risk Assessment
Salina, NY
Mike performed the baseline human health risk assessments and exposure pathway analyses. As part of this effort, he reviewed and analyzed data from several environmental media; researched the toxicological profiles (carcinogenic and noncarcinogenic effects) for numerous contaminants; evaluated the exposure scenarios for different environmental media; and characterized levels of risks for various human receptors in current and future land use scenarios. Mike also coordinated with the ecological risk assessor for this project, by sharing data interpretations and reviewing EPA methodologies.

NJDEP – Hudson County Chromate Waste State Superfund Project
Hudson County, NJ
For this NJDEP Superfund project that consisted of 23 individual sites, Mike conducted in-depth file reviews, initial investigations (audits), and historical reviews and assembled Background Investigation Reports for NJDEP. He developed Site Specific Work Plans for the characterization of chromate waste contamination in soil and groundwater; conducted detailed building inspections and completed findings reports; and developed site conceptual models, indicating potential paths of chromate waste transport and possible human risk/ecological risk.

Wireless Telecommunication Facility Reviews
Ongoing, Multiple NYS Municipal Clients, NY
Mike serves as the HDR program manager for wireless telecommunications facility siting projects on behalf of several NYS municipalities. He has been project manager for wireless facility siting efforts for the villages of Rye Brook, Port Chester, Scarsdale, Haverstraw, Goshen, and Sleepy Hollow, the City of Mount Vernon, and the Towns of Greenburgh, Somers, Newburgh, and Marlborough in NY. Responsibilities have included the technical reviews of applications for completeness (FCC, local codes); assessment of coverage and capacity information; analysis of health and safety criteria relating to non-ionizing electromagnetic radiation; coordination of field surveys and visual impact analyses; and participation at public meetings. Mike has reviewed wireless telecommunication facilities (code/ordinance items, analysis of decommissioning procedures, inventory

and inspection of sites) and developed and managed a wireless locational plan study for the Village of Sleepy Hollow. A key issue with wireless telecommunication facility projects involves the real and perceived issues of radio frequency emissions at base stations (cell towers, roof top installations). Mike completed a three-day training course (Narda) in health & safety and assisted with reviewing emission calculations and field measurements.

Ikea Retail Site
Brooklyn, NY
As part of the work HDR performed on behalf of an attorney for Ikea, Mike evaluated soil and sediment data and assisted with the preparation of a Work Plan and Clean-up Agreement under the NYSDEC's Brownfields Clean-up program. Data interpretations included statistical review and correlation of on-site soil data and near-shore sediment data from the Hudson estuary. Areas of Concern (AOCs) were identified to address soil and groundwater contamination.

Remediation of Soils impacted by Mercury, Confidential Multiple Client
Westchester County, NY
Mike managed follow-on assessment and clean-up of residual mercury contamination at a former battery manufacturing facility. Geoprobe delineation sampling was conducted around two hot-spot areas, and in-situ stabilization / solidification was selected as the viable remedy for the contamination. Mike coordinated pilot testing of stabilization mixes, and coordinated the contractor during field operations that included stabilization / solidification of one of the hot-spots and excavation with off-site disposal for the second hot-spot. He was also involved in the planning of site re-development, and provided input on potential health and safety issues for the re-development contractors.

USACE Kansas City District/USEPA Region II, Indefinite Delivery Architect-Engineer Service Contract
Mike is responsible for the review and costing analysis for investigatory services performed by Subcontractor. He is overseeing Investigation activities that were assessed include: initial groundwater assessment; additional soil and groundwater sampling; installation of shallow and deep overburden monitoring wells and rock wells; establishment of long-term groundwater monitoring plan; and data management. Mike performed independent costing analyses to assess proposed Subcontractor efforts. Remedial Design cost is $1.8M.

Jones Sanitation Superfund Site Remedial Design and Construction Management
Hyde Park, NY
Mike conducted technical reviews of historic site information and activities that led to the impact of environmental media with chlorinated solvents (VOCs) and metals. He reviewed HTRW field investigation methods and corresponding data including groundwater, surface water, soils, leachate, solid waste and air. Mike assisted with the identification and screening of remedial options/costs used in the FS. Engineering services Project costs were $1.3M.

Attachment 1

JENSEN HUGHES

Technical Memorandum with respect to the potential bulk transfer of coal at the proposed Oakland Bulk and Oversized Terminal Project

Our File Number: FV152422
Date of Report: September 15, 2015

Prepared for: California Capital & Investment Group

Prepared by: JENSEN HUGHES

Peter L. Senez, M.Eng.

Reviewed by:

Andrew Coles, M.Eng., P.E. (FP 1650)

13900 Maycrest Way
Unit 135
Richmond BC
V6V 3E2 Canada

604 295 4000 TEL
604 295 3434 FAX

Table of Contents

1.0 Introduction 1
2.0 Coal and coal Dust Properties 1
3.0 Facility Design 2
4.0 Conclusion 3

Appendix A: CV of Peter Senez

1.0 INTRODUCTION

The following provides a qualitative assessment relative to the potential risks associated with the potential distribution of coal at the Oakland Bulk and Oversized Terminal (OBOT) Project. It is our understanding that no commitment has been made to include or exclude any particular commodity at OBOT, were it to transport coal. OBOT would receive coal in rail cars and then convey it from the rail cars to enclosed temporary storage buildings. When the product is ready for shipping, it would be conveyed from the storage buildings to ocean vessels for transport.

Coal is a chemically stable material that has typical risks associated with the handling of bulk commodities such as sugar, grain, wood chips, sulphur or other materials. Proper operation, storage and handling allows for the control and mitigation of potential fires and explosions during the transfer process. These hazards are well understood by industry.

Designers are required to follow relevant fire codes and applicable design standards that address the potential fire risks. This possible use at OBOT does not present a disproportionate hazard compared to other commodities, all of which have a strong safety track record and infrequent event occurrence. The fire and life safety risks associated with the movement of the goods is readily addressed using good, standard fire protection engineering practices.

The location and scale of the site correspond with the opportunity to transfer coal at this location in a safe and reliable manner when using proper engineering controls and mitigation procedures.

2.0 COAL AND COAL DUST PROPERTIES

The hazards associated with coal have been extensively studied and are well understood. Coal is primarily carbon, and an industry-established quality (or rank)[1] defines the amount of carbon. The coal that potentially would be transported to the facility would primarily be Utah bituminous coal, which is considered a high rank coal and is less likely to pose a hazard than lower ranking coal.

The coal would be transported from the mine in a post-production state approximately the size of golf balls (1-2" diameter). As the coal is handled during transfer (loading and unloading), coal particulate breaks away producing "fines." It is the production of fines that may create dust that requires management. During transfer operations, the fines may become airborne, creating a dust cloud within the process and requires controls and mitigation measures to limit contact with ignition sources to prevent the potential for a dust cloud explosion.

These issues with regard to material handling of coal are reflected in industry design standards and best engineering practice documents.[2,3,4,5] Under atmospheric conditions coal dust is stable, and it requires a combination of numerous factors occurring at the same time (e.g., moisture content, temperature, humidity, dust particle size, dust concentration and an ignition source) to be considered dangerous. Fire

---

[1] https://www.uky.edu/KGS/coal/coalkinds.htm

[2] NFPA 68: Standard on Explosion Protection by Deflagration Venting, 2013 Edition National Fire Protection Association, Quincy, Massachusetts, USA

[3] NFPA 704 Standard System for the Identification of the Hazards of Materials for Emergency Response, 2012 Edition, National Fire Protection Association, Quincy, Massachusetts, USA

[4] Approved Code of Practice for the Prevention of Sulphur Fires and Explosions, Occupational Safety and Health Service, Department of Labour, Wellington New Zealand, June 1993

[5] NFPA 120, Standard for Fire Prevention and Control in Coal Mines, 2015 Edition, National Fire Protection Association, Quincy, Massachusetts, USA

protection engineers incorporate design features in the material handling of the product to limit this hazard, which will be considered in the design of the OBOT facility. Coal is comparable in relative risk of explosion to many regular household commodities such as powdered milk, soy flour, and sugar and other products such as sulphur.[6]

With respect to fire, coal is an ordinary combustible that requires the input of energy in order to ignite. Oxidation of the coal can lead to an ignition process known as spontaneous combustion – whereby internal self-heating occurs eventually leading to ignition. Many materials are recognized for this potential including hay, canola meal, wood chips, all of which are prone to spontaneously ignite when stored for extended periods. Extended storage is not anticipated at OBOT given that it is primarily a transfer terminal. Further, it is anticipated that only higher ranked coal (which is less likely to spontaneously combust) would be received and temporarily stored at OBOT.

Any concerns with the potential risk of spontaneous combustion can readily be addressed through safe design and handling practices to detect the early development of heating within the coal piles, and thereby offset the potential for ignition in advance of the reaction reaching the combustion stage. Means to reduce the risk of spontaneous combustion include monitoring and trending of combustible gases and pile temperature, and potentially controlling the oxygen within the storage building to limit combustion potential. The design of the facility will therefore have the benefit of a modern understanding of risks and the implementation of current industry guidelines on management of storage piles. These risks can be limited through good design, and monitored using detection equipment to identify when potential conditions are developing in piles, and allowing for appropriate response.

Therefore, controlling fines during the material handling (dumping and processing) and managing storage (monitoring gas and temperatures, moisture content and pile management) will provide a safe operating environment. However, should a fire or explosion event occur, there will be protection measures that address potential incidents by suppressing or containing it to a localized, manageable event.

3.0 FACILITY DESIGN

Based on the risks identified above related to transport, handling and storage of coal, the following features will need to be taken into consideration in the design of the facility.

1. Dumping Process
   - Manage drop distance and dust cloud formation.
   - Use rail cars that dump from the bottom of the car.
2. Limit Dust Accumulation
   - Limit formation of dust where possible.
   - Use dust extraction systems in the dumping hopper to remove dust from the process.
   - Use misting systems to wet the product as it is dumped.
3. Mitigate Ignition Sources
   - Eliminate, to the greatest extent reasonably possible, static electricity by grounding all equipment and using materials that will not "encourage" the buildup of static charge.

[6] See Footnote 2.

- Appropriately protect electrical equipment in protective enclosures as required by codes and standards.
- Mitigate tramp metal introduction into the process.
- Monitor bulk temperature entering the process from the rail cars to the storage piles.
- Provide spark detection in conveyance equipment.

4. Building Design
   - Use explosion relief vents as required by the codes and standards.
   - Provide suitable separation distances from adjacent buildings and structures to limit the potential for damage to other structures and limit risk to any offsite facilities.
5. Storage
   - Limit air circulation and additional handling in the pile to prevent oxygen infiltration.
   - Adhere to good industry practice and process for pile shape, packing in layers, and pile height.
   - Regulate monitoring of piles for internal temperatures and gas production
6. Emergency Management
   - Develop detailed emergency response plan with the local emergency responders.
   - Design the site to provide access and necessary equipment.
   - Properly train and educate emergency responders and facility operators.
   - Regularly maintain and inspect fire protection equipment.

4.0 CONCLUSION

In conclusion, the risks of fire and explosion occurrences in coal handling and storage are well understood and can be readily managed. If an event did occur, there would be systems in place to limit the risk to life and property. The design of the facility will follow well-established industry guidelines and will implement the measures identified above to mitigate, to the greatest extent reasonably possible, the risk of fire or explosions.

CV of Peter Senez

JENSEN HUGHES

PETER L. SENEZ, P.Eng.

Executive Vice-President – Canadian Operations

Experience: 22 Years
With Sereca, a JENSEN HUGHES Company: 12 Years

Education

B.Eng., Mechanical Engineering
Concordia University, 1993

M.Eng., Fire Protection Engineering
University of British Columbia,
1997

Ph.D. Mechanical Engineering (Fire)
in progress
University of Waterloo
2013 - present

Registered P.Eng.

- Alberta
- British Columbia
- Manitoba
- Ontario
- Saskatchewan

Registered FSE

- Singapore

Associations

Member, Society of Fire Protection Engineers (SFPE)

Member, International Association of Arson Investigators

Member, NFPA

Member, International Association of Fire Safety Science

Member, Institution of Fire Engineers

Contact

(604) 295-3420
psenez@sereca.com

Peter Senez is an experienced and well-respected authority in the field of fire engineering. Active in the fire industry for over 20 years, Mr. Senez has diverse and unique industry experience with expertise in fire engineering, building and fire code consulting, fire testing, risk and failure relative to fires and explosions. Relative to fire investigation, he has investigated and analyzed fires in vehicles, structures, heavy equipment, aircraft, boats, forests, marine complexes, commercial buildings and large industrial facilities. Peter practices internationally in both forensics and fire protection engineering design and includes work in the US, Canada, Hong Kong, Singapore, Malaysia, UAE, Saudi Arabia and Trinidad. He has testified as an expert in fire investigation, fire code compliance, and fire engineering and has completed over 1,000 fire investigations. He has also chaired and managed numerous significant and high profile large losses and is familiar with the complexities of analyzing sites, evaluating systems, and identifying modes of failure or potential mechanisms for causation.

PROFESSIONAL HIGHLIGHTS

Vice President, Canadian Operations, JENSEN HUGHES (formerly Sereca Consulting), Vancouver, BC, 2003–present. Responsible for Canadian operations, Peter is leading the expansion of the company to establish an unparalleled reach through Canada and internationally. Formerly the CEO of Sereca, which merged with JENSEN HUGHES in 2015, Peter has provided leadership in the growth and development of fire and forensic services and leads many large projects and forensic analyses.

Throughout his career he has focused on technically challenging and complex fire engineering problems servicing architects, insurers, developers, lawyers, owners, and manufacturers. He provides leadership in professional engineering services on large infrastructure and complex building projects and is often imbedded as the leader of the fire protection and life safety team. With a combined engineering and practical fire background, expertise has been developed in many aspects of mechanical and fire engineering, including mechanical systems, fire behavior, heat transfer, fire growth, combustion dynamics, sources of ignition, ventilation tenability, risk assessment and explosion dynamics.

Specific to the process industry, Peter has been involved in analyzing event causation, mitigation and risk assessments for a range of products and hazardous material processes, including wood processing, coal mining, lithium batteries, sulfur, gasoline, manufacturing, hydrogen, LPG, LNG, wheat and canola storage, sugar, and other materials and products that require safe handling practices and storage arrangements.

Senior Engineer, Fire Group, MacInnis Engineering Associates Ltd, Vancouver, BC, 1999-2003. Senior Engineer responsible for the technical investigation of fire and explosion incidents. Conducted fire and explosion investigations, including scene investigations, evaluation of fire spread mechanisms, establishment of causation, assessment of building design and the preparation of expert reports. Coordinated a series of full-scale fire tests on dwellings to evaluate different modes of fire behaviour with and without ignitable liquids. Used computer fire modeling to evaluate fire and smoke behaviour in buildings, and predict burn patterns and smoke detector response.

Fire Protection Engineer, Locke MacKinnon Domingo Gibson & Associates Ltd., Vancouver, BC, 1993-1999. Provided building and fire code consulting services to architects, engineers, developers, and legal firms. This included the evaluation of industrial manufacturing facilities and analysis of specialized fire protection systems and hazardous materials. Fire testing options and standards were reviewed for manufacturing clients, including room fire tests, fire-resistance tests, and small-scale testing procedures. Fire testing was coordinated with laboratories and the test results were analyzed to engineer product variations. Equivalencies were developed based on industry research and testing to meet the intent of prescriptive building and fire code requirements. Acceptance of equivalencies with authorities having jurisdiction was coordinated.

Fire Protection/Mechanical Consultant, Public Works Canada - Architectural & Engineering Services, Vancouver, BC, July–September 1993. Evaluated building plans for compliance with applicable codes and fire safety standards. Reviewed pier and wharf construction for small craft harbours and performed marine inspections. Developed a building upgrading plan. Conducted engineering work on strain gauges, non-destructive test methods, pumps, hydraulic calculations, and specification preparation.

Sergeant/Fire Inspector and Fire Fighter, Town of Otterburn Park, QC, Otterburn, Quebec, 1988-1993. Responded to fires, accidents, and other emergencies. Developed and implemented a fire prevention program for commercial establishments. Analyzed the water distribution network and made recommendations to improve its effectiveness.

PUBLICATIONS

Structural Exposure of Steel Frame in Large Fire Incident
Senez P, Calder K, Milford A., Coles A. Response of Structures Under Extreme Loading, Protect 2015, Lansing, MI, USA, Jun 28-30, 2015

Structural Fire Exposure of Transit Stations Relative to Vehicle Fires
Senez P, Calder K, Milford A., Coles A. Response of Structures Under Extreme Loading, Protect 2015, Lansing, MI, USA, Jun 28-30, 2015

Fire Loss Statistical Considerations in relating Failure and Building Damage to the Building Code Objectives
Senez P, Calder K, Li H. Interflam 13th International Fire Science and Engineering Conference, London, UK, June 2013

Alternative Solutions and Acceptable Risk – A Canadian Context
Senez P, Calder K, Coles A. Society of Fire Protection Engineers 9th International Conference on Performance-Based Codes and Fire Safety Design Methods, Hong Kong, June 2012

The Historical Basis for Determining Occupant Loads
Calder K, Locke H, Senez P. Society of Fire Protection Engineers 9th International Conference on Performance-Based Codes and Fire Safety Design Methods, Hong Kong, June 2012

Review of Proposed Building Code Changes to Permit 5/6 Storey Wood Frame Construction
Senez P, Calder K. Building and Safety Policy Branch, Office of Housing and Construction Standards, Government of British Columbia, November 2008

Experimental and Simulated Analysis of Room Fire Theory for Forensic Applications
Senez P, Calder K. Proceedings of the 9th International Fire and Materials Conference, San Francisco, CA, February 2005

Assessing the fire-resistance rating of tile-spaced concrete floor assemblies
Senez P, Locke H. Fire-Protection Engineering, pp. 25-28. Society of Fire Protection Engineers, 1999

A forensic analysis of a Montreal building fire
Senez P, Mehaffy J. Proceedings of the Third International Conference in Fire Research and Engineering, pp. 243-254. Society of Fire Protection Engineers, International Association of Fire Safety and Science, National Institute of Standards and Technology, 1999

Evaluating materials and fire protection systems using full-scale fire tests
Torvi D, Senez P et al. Proceedings of the Third International Conference on Fire Research and Engineering, pp. 363-374. Society of Fire Protection Engineers, International Association of Fire Safety and Science, National Institute of Standards and Technology, 1999

Investigating fires - An engineering approach
Senez P. Adjusters Quarterly, pp. 11-17. BC Insurance Adjusters Association, Vancouver, BC, 1999

Assessing the fire-resistance rating of tile-spaced concrete floor assemblies in the former Woodward's Department Store
Senez P. Proceedings of SFPE Technical Symposium on Fire-Resistance Ratings, Fairfax, VA, 1998

LECTURES & PRESENTATIONS

Electronic Data Available for Evidence in Fire Investigation
Engineering Evidence in Civil Litigation, The Continuing Legal Education Society of British Columbia, January 2014

Envisioning the Future of Fire Analysis for Design and Forensic Applications
Fire Chiefs' Association of British Columbia, June 2012

Fire Investigation – from Art to Science
National Justice Institute Science Seminar, Vancouver, BC, March 2012

Differences in Fire Behaviour where Accelerants are Used
Canadian Bar Association Hot Topics in Civil Litigation and Insurance Law , Banff, AB, October 2009

Integrated Risk
Red River Valley Mutual Insurance, Altona, MB, April 2008

Reverse Engineering – Applying Fire Science to the Analysis of Real Fires
Canadian Insurance Claims Managers Association Annual Seminar, Winnipeg, MB, April 2008

30-Storey Residential Care Facility Canadian Case Study
SFPE International Conference, Performance-Based Codes and Fire Safety Design Methods, Tokyo, Japan, June 2006

Redefining Concepts of Flashover Theory
Fire Prevention Officers' Association of BC, Annual Seminar, May 11, 2006

Applying Fire Theory to Burn Pattern Analysis and Origin Determination
Fire Prevention Officers' Association of BC, Annual Seminar, May 11, 2006

Flashover at 600°C – maybe but probably not!
Society of Fire Protection Engineers BC Chapter, May 30, 2005

Mock Trial: Expert Fire Cause and Origin Testimony
Singleton Urquhart Fire Litigation Group and the I.A.A.I B.C. Chapter 15, November 13, 2003

Fire Analysis for Insurance Claims
Huston Grant Adjusters, Kamloops BC, September 17, 2003

Methodology and Investigation Tools for Fire Analysis
The International Association of Arson Investigators, Saskatchewan Chapter, Regina, SK, September 10, 2003

Research in Fire Analysis & Computer Modelling
Society of Fire Protection Engineers, St. Laurent Chapter, Montreal, QC, June 14, 2002

Analysis of Fire Patterns and Computer Fire Modelling
Alberta Association of Special Investigators, Red Deer, AB, May 23, 2002

Computer Modelling as a Tool in Fire Investigation
Fire Prevention Officers Association of BC, Nanaimo, BC, May 9, 2002

The Anatomy of Fire, Fire Investigation Seminar
The International Association of Arson Investigators, Chapter 15, Burnaby, BC, April 3-5, 2002

Room Fires and Computer Modelling
Society of Fire Protection Engineers, BC Chapter, Vancouver, BC, March 5, 2002

The New Technology - Recent Developments in Fire Investigation and Litigation
Singleton Urquhart Fire Seminar, Vancouver, BC, March 2001

Forensic Fire Engineering
Canadian Insurance Claims Managers Association, Monthly Meeting, Vancouver, BC, January 2001

Commissioning of Fire and Life Safety Systems
Building Officials Association of British Columbia, Education Seminar, Richmond, BC, December 1999

A Forensic Look at the Future
Forensic Fire Engineering Seminar Presentation sponsored by Shumka Craig & Moore Adjusters Canada Ltd. and Lindsay Kenney, Barristers & Solicitors, Vancouver, BC, November 1999

A Forensic Analysis of a Montreal Building Fire
Third International Conference in Fire Research and Engineering, Chicago, IL, October 1999

Full-Scale Fire Test Method to Evaluate Materials and Fire Safety Systems
Poster Presentation for the Third International Conference on Fire Research and Engineering, Chicago, IL, October 1999

Assessing the Fire-Resistance Rating of Tile-Spaced Concrete Floor Assemblies in the former Woodward's Department Store
SFPE Technical Symposium on Fire-Resistance Ratings, Fairfax, VA, April 1998

A Forensic Analysis of a Montreal Building Fire
Society of Fire Protection Engineers, BC Chapter, Vancouver, BC, March 1998

Downloaded from http://oem.bmj.com/ on October 2, 2015 - Published by group.bmj.com

Living near opencast coal mining sites and children's respiratory health

Tanja Pless-Mulloli, Denise Howel, Andrew King, Ian Stone, John Merefield, Jan Bessell, Ross Darnell

Abstract

***Objectives*—To answer the question whether living near opencast coal mining sites affects acute and chronic respiratory health.**

***Methods*—All 4860 children aged 1–11 from five socioeconomically matched pairs of communities close to active opencast sites and control sites away from them were selected. Exposure was assessed by concentrations of particulate matter with aerodynamic diameter <10 μm (PM_{10}), residential proximity to active opencast sites, and particle composition. PM_{10} was monitored and sampled for 6 weeks in four pairs, and for 24 weeks in one pair. A postal questionnaire collected data on health and lifestyle. Daily health information was collected by a symptom diary (concurrently with PM_{10} monitoring) and general practitioner (GP) records were abstracted (concurrently with PM_{10} monitoring and 52 weeks before the study). Outcomes were the cumulative and period prevalence (2 and 12 months) of wheeze, asthma, bronchitis, and other respiratory symptoms, and the prevalence and incidence of daily symptoms and GP consultations.**

***Results*—Patterns of the daily variation of PM_{10} were similar in opencast and control communities, but PM_{10} was higher in opencast areas (mean ratio 1.14, 95% confidence interval (95% CI) 1.13 to 1.16, geometric mean 17.0 μg/m³ *v* 14.9 μg/m³). Opencast sites were a measurable contributor to PM_{10} in adjacent areas. Little evidence was found for associations between living near an opencast site and an increased prevalence of respiratory illnesses, asthma severity, or daily diary symptoms, but children in opencast communities 1–4 had significantly more respiratory consultations (1.5 *v* 1.1 per person-year) than children in control communities for the 6 week study periods. Associations between daily PM_{10} concentrations and acute health events were similar in opencast and control communities.**

***Conclusions*—Children in opencast communities were exposed to a small but significant amount of additional PM_{10} to which the opencast sites were a measurable contributor. Past and present respiratory health of children was similar, but GP consultations for respiratory conditions were higher in opencast communities during the core study period.**

(*Occup Environ Med* 2000;57:145–151)

Department of Epidemiology and Public Health, University of Newcastle upon Tyne, UK
T Pless-Mulloli
D Howel

Department of Statistics
D Howel
R Darnell

IMC Technical Services, Bretby Business Park, Burton on Trent, UK
A King

Earth Resources Centre, University of Exeter, now Advance Environmental, Wolfson Laboratory, University of Exeter, Exeter, UK
I Stone
J Merefield

Dickinson Dees, St Ann's Wharf, Newcastle upon Tyne, UK
J Bessell

Correspondence to:
Dr Tanja Pless-Mulloli, Department of Epidemiology and Public Health, The Medical School, Framlington Place, Newcastle upon Tyne NE2 4HH, UK
email
Tanja.Pless-Mulloli@ncl.ac.uk

Accepted 15 October 1999

Keywords: opencast coal mining; respiratory health; PM_{10}

There is now a substantial body of evidence linking ambient concentrations of particulate matter of <10 μm diameter (PM_{10}) to respiratory symptoms, decreased lung function, hospital visits, school absences, and other health outcomes.[1–8] Previous studies have been concerned with health effects of particulate matter generated by combustion processes from point sources, by vehicle emissions, or with general urban background concentrations of PM_{10}. The current study was initiated in 1993 in response to concerns expressed by local community groups about a possible link between living close to opencast coal mining sites and respiratory ill health, and this concern has continued to be raised.[9–13] The study was designed to compare rural and semiurban populations exposed to a mixture of background and opencast mining PM_{10}—that is, overburden, soil, and diesel—with populations exposed to similar rural background concentrations of PM_{10} only. The study objectives were to compare and characterise acute and chronic exposure of children living near and some distance from opencast sites; to characterise and compare their general, chronic, and acute health; and to link measures of acute and chronic exposure to measures of health.

Methods

STUDY AREAS

The design was based on matched pairs of rural and semiurban communities or part of them with population sizes 2000–20 000. We identified five communities close to operational opencast sites and five paired control communities some distance away (fig 1). They were matched for socioeconomic characteristics with census data, urban and rural mix, proximity to the coast, local topography, and population size. The communities near opencast sites were chosen by a predefined set of criteria.[14]

STUDY SUBJECTS

We identified all 4860 children aged 1–11 years resident within specified geographical areas and registered with a general practitioner (GP): 2443 in opencast communities, 2417 in control communities. Young children were chosen because of their likely susceptibility to respiratory events related to pollution, absence of active smoking, and occupational exposure to pollutants, and because their movements were likely to be predominantly within the monitored community.

Downloaded from http://oem.bmj.com/ on October 2, 2015 - Published by group.bmj.com

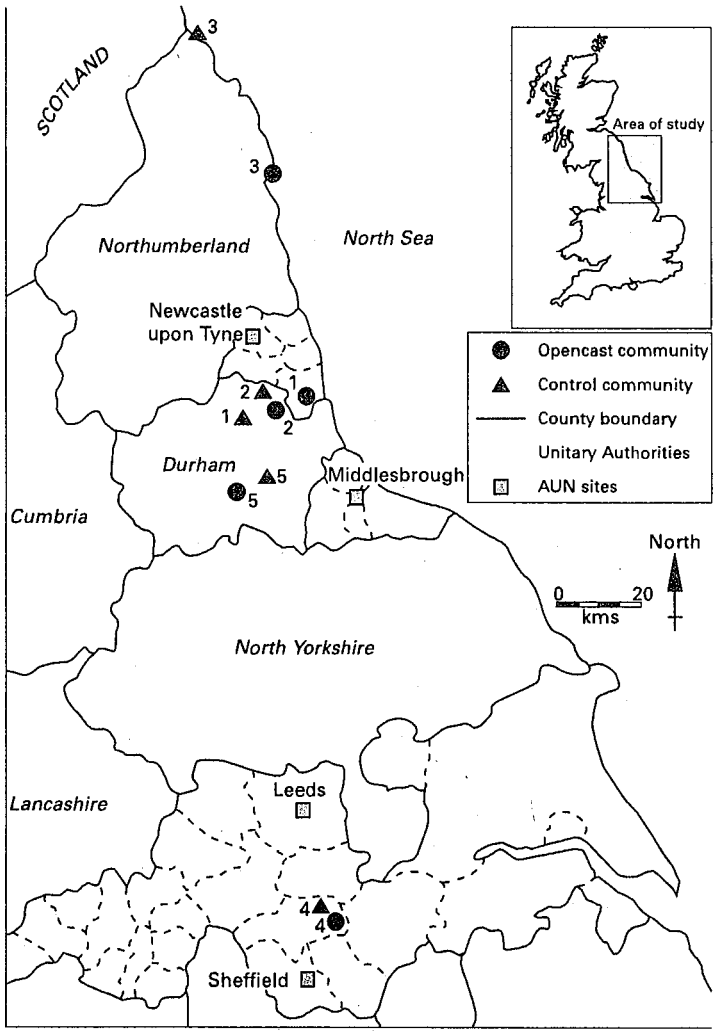


Figure 1 Distribution of sites and communities across England.

ASSESSMENT OF EXPOSURE

Assessment of exposure was conducted at different levels. Long term exposure was defined as living near an active opencast site, the duration of long term exposure varied with the age of the children and with the duration of activity at the opencast sites (6 months to 8 years before the monitoring periods).

The PM_{10} was monitored with tapered element oscillating microbalance (TEOM) continuous real time monitors (30 minute means) placed centrally within each community to best represent the PM_{10} concentrations that children were exposed to. Samples were collected by co-located samplers and near site boundaries (152 concurrent weekly samples). The PM_{10} data were collected for 6 week periods in pairs 1, 3, 4, 5 and for 24 weeks in pair 2 (pair 1 November–December 1996, pair 2 February–June 1997, pair 3 June–July 1997, pair 4 Sepember–October 1997, pair 5 October–December 1997). The approximate distances between the community monitor and the first point of operational activity during the monitoring period were estimated as: opencast community 1 = 800 m, opencast community 2 = 750 m, opencast community 3 = 1300 m, opencast community 4 = 800 m, opencast community 5 = 1400 m. Wind speed and direction were also recorded at the monitoring locations in opencast and control communities.

At least 100 insoluble particles per weekly sample were characterised by scanning electron microscopy with energy dispersive analysis (SEM-EDS). The particle type was described by the categories: shale (as an indicator for opencast derived particulates),[15 16] soot, flyash, carbon, biological, quartz, and other. Particle size, number, shape, and sphericity were also recorded. Water soluble PM_{10} particulates were analysed with graphite furnace atomic absorption spectrophotometry (GF-AAS) and ion chromatography.

HEALTH OUTCOMES

Health outcomes covered different levels of severity of respiratory illness. A postal questionnaire collected information on family circumstances, lifestyle factors, and on children's history of respiratory illnesses. A request for access to GP records accompanied the questionnaire; therefore, children whose questionnaires had been returned formed the basis for the collection of daily diary and GP data. The respiratory symptom diary collected information over the 6 week periods concurrently with PM_{10} monitoring. The GP records were abstracted retrospectively both for the 6 week periods, when PM_{10} monitoring took place, and for 1 year before this. Consultations were categorised as respiratory, skin, eye, and other. The first three categories were chosen because of the potential association with PM_{10}.

STATISTICAL ANALYSIS

The PM_{10} concentrations were compared by differences between log (PM_{10}) on those occasions when paired readings were available in both communities, because of the skewed distribution: geometric means and mean ratios were therefore used as summary statistics. Comparisons of PM_{10} concentrations between opencast and control communities were made with a Cochrane-Orcutt linear regression which adjusted for serial correlation.[17] Logistic regression for questionnaire data fitted models with terms for residence in an opencast community (yes or no) and pair (1, 2, 3, 4, or 5) and previously defined covariates: age, sex, housing tenure, asthma. If a significant interaction between pair and residence in an opencast community was detected, odds ratios (ORs) were estimated separately for similar groups of pairs. Two methods were used to consider the issues of variation between children and serial correlation for respiratory diary and GP data: logistic regression incorporating extrabinomial variation,[18] and logistic regression with generalised estimating equations (GEE).[19] As the health data showed little evidence of serial correlation, GEE results are not reported here.

Logistic regression models were fitted to investigate the link between daily PM_{10} concentrations and daily health outcomes assuming independent errors and extra binomial variation where necessary. These included predic-

Downloaded from http://oem.bmj.com/ on October 2, 2015 - Published by group.bmj.com

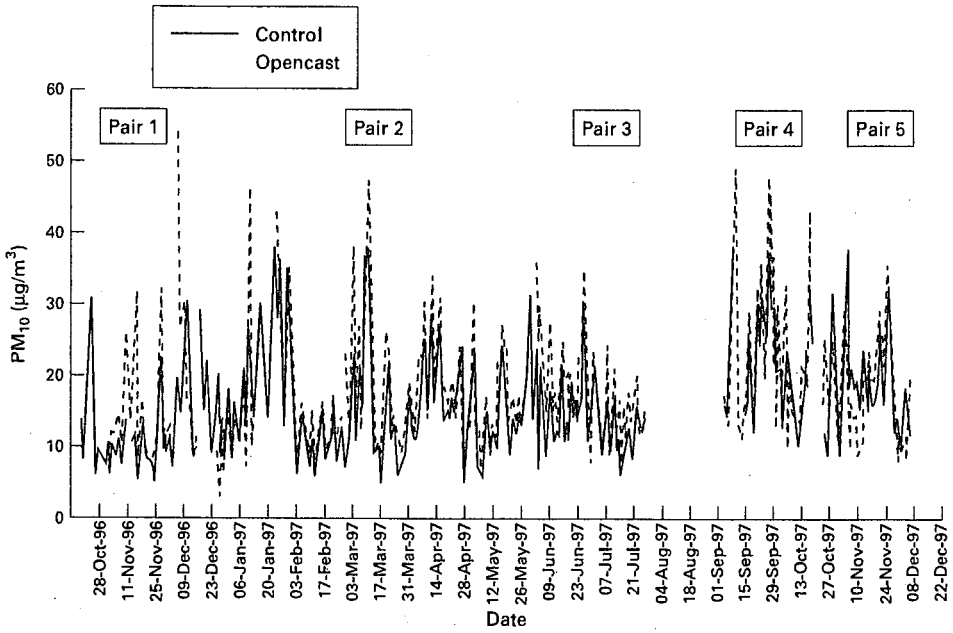


Figure 2 Geometric means of PM_{10} over 24 hours.

tors at the community level, time varying predictors, and predictors at the level of the child. When significant interaction between residence near an opencast site and concentrations of PM_{10} was found, ORs were reported for groups of similar communities.

Results

COMPARISON OF PM_{10}

Figure 2 shows that despite a wide range of values (3–54 µg/m³) daily PM_{10} patterns were similar for much of the period. The geometric mean paired difference between simultaneous readings in opencast and control areas was 2.5 µg/m³, the maximum was 35 µg/m³. Most (57%) of the differences between 30 minute PM_{10} were <5 µg/m³ in either direction. Opencast readings were higher than control readings in 63% of paired readings, reflected in an overall geometric mean of 17.0 µg/m³ in opencast (5x6 weeks) and 14.9 µg/m³ in control areas.

The geometric mean ratio (table 1) was 1.14 (95% confidence interval (95% CI) 1.13 to 1.16). In pairs 1–4 opencast readings were on average higher than those in control areas, whereas in pair 5 this trend was reversed. The differences between opencast and control areas were not found to be greater under conditions when PM_{10} related to the site had been expected to be higher (when the monitored wind direction was from the site to the community monitor, or during permitted site working hours).

Table 1 Comparison of 30 minute PM_{10} concentrations (TEOM) in opencast and control communities

Pair	Duration (weeks)	Geometric mean (µg/m³) Opencast	Geometric mean (µg/m³) Control	Mean ratio (opencast/control)	95% CI	Pairs of readings (n)
1	6	14.4	11.4	1.27	1.20 to 1.35	1871
2	6	16.2	13.2	1.23	1.18 to 1.29	1975
3	6	16.1	13.3	1.21	1.15 to 1.27	1999
4	6	22.3	20.4	1.09	1.06 to 1.13	1784
5	6	17.1	18.1	0.94	0.89 to 1.00	1984
1–5	30	17.0	14.9	1.14	1.13 to 1.16	9613

CHARACTERISATION OF PM_{10}

The proportion of shale was consistently higher in samples from the boundary of the opencast sites. These particles also had the largest mean size, which reflected their closer proximity to their source. In pairs 1–4 the proportion of shale was higher in both boundary and opencast site samples compared with control area samples (fig 3). As shale is the dominant particle type associated with mineral dust emissions from opencast sites, this indicated that opencast sites were adding to the PM_{10} load in the adjacent communities.

RESPONSE RATES

Parents of 1639 children in opencast communities and 1577 children in control communities returned the questionnaire (response rate 69% and 68%). Seventy seven GP practices were approached for access to their records and 2442 records were accessed (79% in opencast, 73% in control communities). Few GPs denied access to their premises, but the request by some practices to obtain individual written consent to access a record, and the subsequent lack of response from the parents, was the main reason for failure to obtain GP records. Of parents 46% who received a daily diary returned it.

COMPARABILITY AND CHARACTERISTICS OF THE STUDY SAMPLE

Questionnaire respondents in opencast and control communities were, overall, well matched for factors linked with the occurrence of respiratory illnesses (table 2). However, children in control communities were more likely to have lived at their present address for most of their lives, and live in a household with polluting cooking fuels. These imbalances

Downloaded from http://oem.bmj.com/ on October 2, 2015 - Published by group.bmj.com

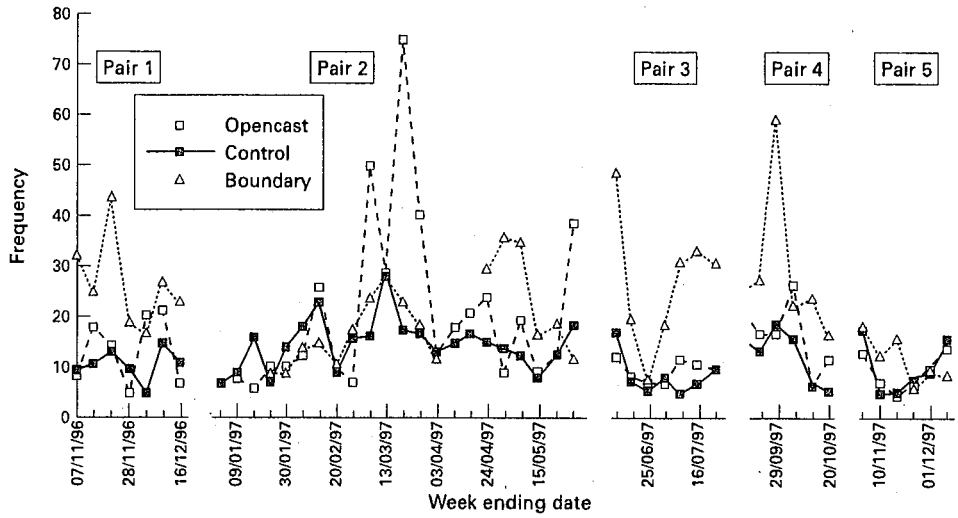


Figure 3 Frequency of shale (%). Three high proportionate shale contents in opencast community 2 were related to local roofing work, not opencast operations.

Table 2 Characteristics and comparability of study samples

	Communities	
	Opencast (%)	Control (%)
Age (y):		
1–4	27	28
5–8	39	36
9–11	34	35
Sex:		
Male	52	48
Household:		
Not owner occupied	35	35
Unemployed*	12	10
No car access	18	20
Single adult	15	16
≥1 Smokers in household	45	43
≥1 Indicators of damp	17	22
Polluting heating†	66	63
Polluting cooking‡	44	59
Present address for most of life§	85	91
Long term work in dusty industry¶	17	15
Respondents (n)	1639	1577

*≥1 Adults seeking work.
†Coal or open fire, solid fuel, coke, wood, gas fires orbottles, paraffin.
‡Solid fuel, oil, gas.
§Child at present address or within half a mile for most of life.
¶Adult in household worked in agriculture or gardening, coal industry or coal delivery (not opencast), cokeworks, opencast coal extraction, potter or ceramics, printing industry, quarrying or stonemasonry, wood or paper industry.

were considered in the statistical analysis of the health outcomes. With census variables children's households in the study population were found to be representative of their wider community population, with the exception of access to a car, which was more common in the study respondents. The subsamples for which daily diary and GP data were collected, were also similar for demographic and lifestyle characteristics.

HEALTH OUTCOMES AND CHRONIC EXPOSURE

There was little evidence of an association between living in an opencast community and the cumulative (lifetime) prevalence of wheeze, asthma, or bronchitis or the period prevalence of asthma attacks and their severity (table 3).

HEALTH OUTCOMES DURING THE 6 WEEK MONITORING PERIOD

Living near an opencast site was not significantly associated with the daily prevalence of wheeze, cough, or other respiratory symptoms in daily diaries (except for three outcomes in single pairs, two positive, one negative, table 4). The use of asthma relievers was not significantly associated with proximity to an opencast site in pairs 1 and 2, but there was a significant positive association in pair 3.

The GP consultation rates were overall slightly lower during the 6 week study periods compared with the year before the study (2.7 *v* 3.1 per person-year in opencast and 3.0 *v* 3.3 per person-year in control communities), and were overall slightly higher in control communities than in opencast communities. Considerable variation was again found between communities and pairs. No significant association between living in an opencast community and the rate of consultation for any reason was found, but the odds of respiratory, eye, and skin consultations, and respiratory consultations were 40% (2.1 *v* 1.5 per person-year) and 42% (1.5 *v* 1.1 per person-year) respectively higher in opencast than in control communities in pairs 1–4 but not in pair 5, for the 6 week periods. This finding was not repeated for the 52 week periods, where a more mixed picture emerged.

SHORT TERM HEALTH ASSOCIATIONS WITH DAILY PM_{10} CONCENTRATIONS

The variation between associations found in the 10 communities made it necessary to report these results in separate groups. Around half of the associations between daily concentrations of PM_{10} and wheeze, cough, and other respiratory symptoms were positive and significant (table 5), and the precision of the estimates of the rest meant that they were consistent with a zero or positive association. The associations with use of an asthma reliever and GP consultations were all non-significant, but consistent in direction and of similar order to those seen for daily diary symptoms. Similar

Downloaded from http://oem.bmj.com/ on October 2, 2015 - Published by group.bmj.com

Table 3 Health outcomes and chronic exposure (ORs (95% CIs) for association with proximity to opencast sites)

	Community				
	Opencast	Control	OR*	95% CI	Children (n)
Cumulative prevalence (%):					
Wheeze	36	37	1.03	0.8 to 1.2	3216
Asthma	21	21	1.03	0.8 to 1.2	3216
Bronchitis	8	6	1.3	0.99 to 1.8	3216
Period prevalence in past year (%):					
≥12 Wheezing attacks	6	9	0.5	0.2 to 0.93	588†
Woken child at night	62	68	0.8	0.6 to 1.2	588
Limited speech	18	20	0.9	0.5 to 1.4	588
Occurred on exercise	60	61	1.01	0.7 to 1.5	588

*OR from logistic regression estimating association with community type after adjustment for pairs, child's sex, number of people in household, smoking, moulting pets, use of polluting fuel to heat or cook, damp, housing tenure, unemployment, access to transport, child's age, family history of asthma, eczema, or hayfever, propensity of parent to worry, and population stability.
†Children who have had asthma or wheezing attack in past year.

Table 4 Health outcomes during 6 week monitoring period (ORs (95% CIs) for association with proximity to opencast sites)

	Community					
	Pair*	Opencast	Control	OR†	95% CI	Children (n)
Prevalence of diary symptoms (%):						
Wheeze	1 to 5	4	4	0.82	0.36 to 1.89	1405
Cough	1,2,4,5	15	17	0.96	0.79 to 1.16	1405
	3	16	8	1.99	1.31 to 3.01	
Other respiratory symptom‡	1,3,4,5	17	15	1.26	0.99 to 1.61	1405
	2	16	19	0.80	0.66 to 0.97	
Asthma reliever used§	1,2	24	37	0.66	0.33 to 1.26	224¶
	3	31	13	4.32	1.12 to 16.7	
GP consultations (n/person-year):						
All	1,2,3,4	2.7	2.4	1.10	0.94 to 1.29	2442
	5	2.2	4.6	0.43	0.24 to 0.78	
Respiratory, skin, eye	1,2,3,4	2.1	1.5	1.40	1.15 to 1.70	2442
	5	0.9	3.8	0.16	0.06 to 0.40	
Respiratory	1,2,3,4	1.5	1.1	1.42	1.13 to 1.79	2442
	5	0.7	3.2	0.15	0.06 to 0.43	

*Different community groupings are the result of significant interactions found in the statistical analysis.
†Association with community type having adjusted for covariates pair, sex, housing tenure, age and asthma.
‡Sore throat, ear ache, runny ear or nose.
§Numbers in pairs 4 and 5 too few to be analysed.
¶Children, who ever had asthma.

Table 5 Short term exposure associations: change in daily health outcome per 10 μg/m³ increase in daily PM_{10} (n=1405)

	Communities*			
Outcome	Opencast	Control	OR†	95% CI
Daily diaries:				
Wheeze	1, 3, 4	1, 3, 4, 5	1.02	0.96 to 1.09
	2	2	1.18	1.05 to 1.33
	5		1.59	1.23 to 2.06
Cough	1, 3	2, 4, 5	1.03	0.99 to 1.07
	2, 4, 5		1.08	1.02 to 1.14
		1, 3	1.28	1.16 to 1.42
Other respiratory‡	1, 2	1, 2, 4, 5	1.01	0.98 to 1.05
	3, 4, 5	3	1.16	1.10 to 1.22
Use of asthma reliever§	1, 2, 3	1, 2, 3	1.00	0.94 to 1.06
Consultations with general practitioner:				
All	1,2, 3, 4, 5	1, 2, 3, 4, 5	1.05	0.96 to 1.15
Respiratory, skin, eye	1,2, 3, 4, 5	1, 2, 3, 4, 5	1.04	0.93 to 1.15
Respiratory	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1.06	0.94 to 1.19

*Different community groupings are the result of significant interactions found in the statistical analysis.
†Association with PM_{10} concentration having adjusted for covariates pair, sex, housing tenure, age and asthma.
‡Sore throat, ear ache, runny ear or nose.
§Numbers in pairs 4 and 5 too few to be analysed.

results were found when the link between respiratory events and lagged levels of PM_{10} were explored. Although the OR estimates varied among the 10 communities, there were no consistent differences between those for opencast and control communities.

Discussion

Not all findings, both on exposure and health, pointed in the same direction, and some results were apparently contradictory. An important observation affecting many analyses was the level of variation between communities and pairs, even although community pairs were well matched for lifestyle and socioeconomic factors.

Exposure to PM_{10} particulate matter and health during the main 6 week data collection periods was investigated with different time scales: half hourly (PM_{10} monitoring); daily (PM_{10} monitoring, GP consultations, daily diary), and roughly weekly (sample characterisation). Health data were also collected for the periods before this study (cumulative and period prevalence, GP consultations in year before the study). The analysis of daily diary entries and events from GP records over the 6 week study periods allowed individual information on health outcomes to be linked with simultaneous daily measures of exposure to PM_{10}. When health outcomes alone were compared over the 6 week study periods or over other periods, current residence in a community near an opencast site was used as the indicator for exposure. This also applied to data on chronic health collected in the questionnaire survey, and for the 1 year period of GP data when concurrent PM_{10} data were not available. Consequently, we cannot ascribe any differences in these health outcomes to variation in concentrations of PM_{10} over time.

Even though the temporal pattern of concentrations of PM_{10} in all 10 communities was dominated by regional patterns, the paired design of the study picked up a small but significant increase in concentrations of PM_{10} in opencast communities. Shale was identified as a measurable component of PM_{10} in opencast communities, indicating an opencast impact on communities. However, additional concentrations of PM_{10} in opencast communities were not linked to monitored wind direction or times of permitted site activity, as had been expected from previous studies which investigated the association at distances closer to opencast sites.[15 20 21] Wind direction was monitored because it was thought to influence concentrations of PM_{10} in communities, and monitors were sited to best reflect conditions experienced by children. This meant that the equipment was sited lower than if the focus of the study had been the dispersion of PM_{10} created on opencast sites. Local topography might therefore have influenced readings of wind speed and direction in some communities.

Recent evidence has suggested a fairly good correlation between personal exposure to PM_{10} and ambient concentrations of PM_{10}.[22 23] Thus the PM_{10} data collected at the community monitoring sites should reflect children's exposure, although there will be some measurement error in individual exposures.

Small but significant associations were found between daily respiratory symptoms and daily concentrations of PM_{10}. The associations sometimes differed between communities, but they were similar in opencast communities and control communities and also similar to those

Downloaded from http://oem.bmj.com/ on October 2, 2015 - Published by group.bmj.com

in previous studies, which were mainly conducted in areas with higher concentrations of PM_{10} than our study communities.

The small associations found between daily health and PM_{10} data indicated that the small mean difference in concentrations of PM_{10} found between opencast and control communities led to small mean effects on daily health events. Although differences in daily concentrations of PM_{10} of around 2 $\mu g/m^3$ were the most common, there were days when the difference was 10 $\mu g/m^3$, or exceptionally 35 $\mu g/m^3$. However, the reported associations suggested that the prevalence of symptoms would be predicted to change very little even for the largest differences in daily concentrations of PM_{10} found.

From the small positive associations found between daily concentrations of PM_{10} and respiratory symptoms we might have expected to find very small differences in the analysis of health outcomes over the 6 week study periods, as the average daily difference in PM_{10} was 2 $\mu g/m^3$. However, the daily analysis does not allow us to predict the effect of a change in the 6 week mean of PM_{10}. Very few significant associations were found between daily diary symptoms and living near opencast sites. However, there were significant associations between GP consultations for respiratory, skin, and eye conditions and living near opencast sites, in four out of five pairs over the 6 week period. These are conditions that could be expected to be exacerbated by an increase in concentrations of PM_{10}. It is unlikely that the positive findings on GP consultations were due to changes in behaviour of parents or GPs because they were aware of the study. There are several reasons for this: no study material sent to parents or GPs mentioned that opencast mining was the focus of the study; the effect was not found in daily diary or questionnaire data; the effect was not found for the overall consultation rate; and finally, consultation rates for the 6 week periods were lower overall than for the year before the study. This majority pattern in the GP results did not apply to pair 5, where an unusually high consultation rate occurred in the control community but not in the opencast community. Consultation with the local health authority did not suggest that a different pattern of primary healthcare delivery, or other local factors, could easily explain the excess in the recorded consultation rates in control community 5. Overall, therefore, we found an association between living near an opencast site and health outcomes over the 6 week periods for one type of health outcome but not for the other. It might be argued that this would not be too surprising given the very small size of the effect, which could have been expected on the basis of the findings from the analysis of daily PM_{10} and health data.

The cumulative and period prevalence of respiratory events from the questionnaire were similar to recent national surveys[24-26] and there was little evidence for a difference between opencast and control communities. We need to be aware, however, that exposure was assessed, for this analysis, by current proximity of residence near an opencast site and these had been operational for varying periods before the survey. However, the fact that positive associations were found between residential proximity to opencast sites both with daily PM_{10} and GP consultations for respiratory, skin, and eye conditions over 6 week periods does not necessarily contradict the non-significant findings of the questionnaire survey. Given the small size of the association between daily concentrations of PM_{10} and health outcomes, differences in the sensitivity of exposure and health outcome measures may have contributed to these results. An extrapolation from the link between daily PM_{10} and health to an estimation of an expected difference in chronic health would not be justified.

Conclusions

We concluded that children in opencast communities were exposed to a small but significant amount of additional PM_{10} to which opencast sites were a measurable contributor; past and present respiratory health of children was generally similar, but GP consultations for respiratory conditions were higher in opencast communities during the core study period. Daily concentrations of PM_{10} had similar associations with daily health outcomes in all communities; despite generally low concentrations of PM_{10} these associations were in line with those previously reported from other locations.

First and foremost we are indebted to the parents who completed questionnaires and daily diaries. Among the contributors to the planning and completion of the study were the following: members of the study design advisory group; staff of 20 primary schools reminded children to fill in diaries; 77 GP surgeries permitted access to their records; Environmental Health Departments and other Local Authority staff in Durham, Sunderland, Northumberland, and South Yorkshire helped in finding suitable sites and monitoring locations; landowners gave permission to locate monitoring equipment; RJB Mining (UK) and another operator provided site activity diaries; Professor Raj Bhopal gave advice at the design stage, Maxine Craven did fieldwork during the surveys; Helen Prince did part of the statistical analysis; Jacqui Tate contributed to the design and fieldwork until 1996; Susanne Young helped to co-ordinate the study and did part of the descriptive analysis; Fiona Anderson, Joyce Wotherspoon, and Sharon Ness abstracted information from GP records. Funding was received from local authorities in Northumberland, Durham, and Sunderland (May 1994 to December 1994, pilot study), Northern and Yorkshire Regional research and development grant No 94070020 (December 1994 to November 1996), DOH/DETR/MRC grant No AIR/96/9 (August 1996 to February 1999).

1 Anderson H, Spix C, Medina S, *et al.* Air pollution and daily admissions for chronic obstructive pulmonary disease in six European cities: results from the APHEA project. *Eur Respir J* 1997;10:1064–71.
2 Department of Health. *Quantification of the effects of air pollution on health in the United Kingdom*, HMSO, DOH,1998.
3 Hoek G, Brunekreef B. Effects of low-level winter air pollution concentrations on respiratory health of Dutch children. *Environ Res* 1994;64:136–50.
4 Katsouyanni K, Touloumi G, Spix C, *et al.* Short term effects of ambient sulphur dioxide and particulate matter on mortality in 12 European cities: results from time series data from the APHEA project. *BMJ* 1997;314:1658–63.
5 Pope CA, Dockery D W, Spengler J D, *et al.* Respiratory health and PM_{10} pollution. *Am Rev Respir Dis* 1991;144: 668–74.
6 Pope CA, Dockery DW. Acute health effects of PM_{10} pollution on symptomatic and asymptomatic children. *Am Rev Respir Dis* 1992;145:1123–8.
7 Pope CA. Particulate pollution and health: a review of the Utah valley experience. *Journal of Exposure Analysis and Environmental Epidemiology* 1996;6:23–34.
8 Roemer W, Hoek G, Brunekreef B, *et al.* Daily variations in air pollution and respiratory health in a multi-centre study: the PEACE *project. Eur Respir J* 1998;12:1354–61.
9 Temple JMF, Sykes AM. Asthma and open cast mining. *BMJ* 1992;305:396–7.
10 Brabin B, Smith M, Milligan P, *et al.* Respiratory morbidity in Merseyside schoolchildren exposed to coal dust and air pollution. *Arch Dis Child* 1994;70:305–12.

Downloaded from http://oem.bmj.com/ on October 2, 2015 - Published by group.bmj.com

11 Douglas AC. *An investigation into the relationship between opencast coal mines and respiratory morbidity in Lanarkshire: using a geographical information system.* Edinburgh: Department of Geography, University of Edinburgh, 1997:33.
12 Lyons R, Fielder H, Heaven M, *et al. Report on the acute effects of air pollution on the respiratory health of children in West Glamorgan.* Cardiff: Welsh Combined Centres for Public Health School of Postgraduate Studies in Medicine and Health Care, 1997.
13 Munro JF, Crompton GK. Health effects of respirable dust from opencast coal mining. *Proceedings of the Royal College of Physicians Edinburgh* 1999;**29**:11–15.
14 Pless-Mulloli T, Howel D, Craven M, *et al. Does living near opencast coalmining impair health? Design of an environmental epidemiology study.* Pittsburgh: Air and Waste Management Association, 1997:287–94. (VIP-80.)
15 Merefield J, Stone I, Jarman P, *et al.* Environmental dust analysis in opencast mining areas (5/7, A12). *European Coal Geology* 1995;**82**:181–8.
16 Merefield J, Stone I, Roberts J, *et al.* Monitoring airborne dust from quarrying and surface mining operations. *Transactions of the Institute Mining and Metallurgy* 1995;**104**: A76–8.
17 Cochrane D, Orcutt G. Application of least-squares regression to relationships containing autocorrelated error terms. *Journal of the American Statistical Association* 1949;**44**:32–61.
18 Williams D A. Extra binomial variation in logistic linear models. *Applied Statistics* 1982;**31**:144–148.
19 Zeger S, Liang K. Longitudinal data analysis of discrete and continuous outcomes. *Biometrics* 1986;**42**:121–30.
20 Department of the Environment. *The environmental effects of dust from surface mineral workings.* In: *Summary report and best practice guide.* Vol 1. London: The Stationery Office, DoE, 1995. (Technical report. Vol 2.)
21 Merefield J, Stone I. *Environmental issues in opencast mining.* Rotterdam: Brookfield Institute of Mining and Metallurgy, 1998.
22 Janssen N, Hoek G, Brunekreef B, *et al.* Personal sampling of particles in adults: relation among personal, indoor, and outdoor air concentrations. *Am J Epidemiol* 1998;**147**:537–47.
23 Janssen NAH, Hoek G, Brunekreef B, *et al.* Childhood exposure to PM_{10}: relation between personal, classroom, and outdoor concentrations. *Occup Environ Med* 1997;**54**:888–94.
24 Kaur B, Anderson H, Austin J, *et al.* Prevalence of asthma symptoms, diagnosis, and treatment in 12–14 year old children across Great Britain (international study of asthma and allergies in childhood), ISAAC, UK. *BMJ* 1998;**316**: 118–24.
25 Primatesta P, Bost L, Dond W. *Respiratory symptoms and atopic conditions.* In: *Health survey for England chapter 2.* London: The Stationery Office Department of Health, 1998.
26 Primatesta P, Bost L, McMunn A. *Respiratory symptoms and lung function.* In: *Health survey for England: the health of young people '995–97 chapter 5.* London: The Stationery Office, Department of Health, 1998.

Occupational and Environmental Medicine - http://www.occenvmed.com

Visitors to the world wide web can now access Occupational and Environmental Medicine either through the BMJ Publishing Group's home page (http://www.bmjpg.com) or directly by using its individual URL (http://www.occenvmed.com). There they will find the following:

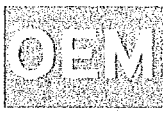
- Current contents list for the journal
- Contents lists of previous issues
- Members of the editorial board
- Subscribers' information
- Instructions for authors
- Details of reprint services.

A hotlink gives access to:

- BMJ Publishing Group home page
- British Medical Association website
- Online books catalogue
- BMJ Publishing Group books.

The web site is at a preliminary stage and there are plans to develop it into a more sophisticated site. Suggestions from visitors about features they would like to see are welcomed. They can be left via the opening page of the BMJ Publishing Group site or, alternatively, via the journal page, through "about this site".

Downloaded from http://oem.bmj.com/ on October 2, 2015 - Published by group.bmj.com



Living near opencast coal mining sites and children's respiratory health

Tanja Pless-Mulloli, Denise Howel, Andrew King, Ian Stone, John Merefield, Jan Bessell and Ross Darnell

Occup Environ Med 2000 57: 145-151
doi: 10.1136/oem.57.3.145

Updated information and services can be found at:
http://oem.bmj.com/content/57/3/145

These include:

References This article cites 14 articles, 7 of which you can access for free at:
http://oem.bmj.com/content/57/3/145#BIBL

Email alerting service Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Notes

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/

CALIFORNIA CAPITAL & INVESTMENT GROUP

OBOT
OAKLAND BULK AND OVERSIZED TERMINAL

TLS
TERMINAL LOGISTICS SOLUTIONS

October 6, 2015

SUBMITTED ELECTRONICALLY
dcole@oaklandnet.com

Claudia Cappio
Assistant City Administrator
CITY OF OAKLAND
One Frank H. Ogawa Plaza
Oakland, California 94612

Re: Responses and Information for City Follow-Up Questions to September 21 Informational Hearing

Dear Ms. Cappio,

Following on an informational hearing held by the City on September 21, 2015, the City issued a series of follow-up questions on September 28, 2015. Attached is the collective response to the follow-up questions on behalf of California Capital and Investment Group (CCIG), Oakland Bulk and Oversized Terminal (OBOT), and Terminal Logistics Solutions (TLS). As you are aware, CCIG is the construction manager for delivery of public improvements at the Oakland Global Trade and Logistics Center (Project), OBOT is the developer of the West Gateway portion of the Project, including the multi-commodity bulk terminal (Terminal), and TLS currently holds an exclusive option to sub-let and operate the Terminal.

As a prefatory matter, we feel compelled to reiterate a few fundamental facts:

First, as we have stated repeatedly, there has been no commitment to include or exclude any particular commodity to or from the Terminal. Over its generational life, the Terminal will undoubtedly hand a wide variety of commodities based on market demand. TLS remains in a mode of "due diligence," exploring the current market demand for the services to be provided at the Terminal, and that process is ongoing and includes discussions with multiple entities regarding a variety of potential commodities.

Second, there is no discretionary action related to the Project pending before the City. The discretionary entitlements for the Project are complete and vested. The City finalized full and complete review of the Project under the California Environmental Quality Act (CEQA) in 2012, including the filing of a Notice of Determination with the County and the State Clearinghouse. Given these circumstances, we want to be clear that the provision of information and responses to questions by CCIG, OBOT, or TLS should in no way be interpreted as suggesting that the entitlements for the Project are in any way incomplete or anything less than fully vested. Further, nothing herein is intended to or should be interpreted as altering or amending in any way the entitlement documents for the Project.

Third, the HDR white paper submitted prior to the September 21 hearing concluded that even without any extraordinary measures or Terminal design features, the Terminal as proposed can and will be operated safely and without undue concern to either the workers at the Project (including the Terminal) or the surrounding community. Unlike the speculative hypotheticals offered by opponents of the Project, the HDR analysis was based upon review of the Basis of Design document submitted to the City on September 8, the Standard Conditions of Approval and Mandatory Mitigation and Reporting Program (SCA/MMRP), federal law, state law, and all regional regulatory requirements including those of the Bay Area Air Quality Management District (BAAQMD). Now-standardized industry best practices documented in the white paper establish the safety of the Terminal as proposed. That TLS herein agrees to incorporate further measures and design features in no way compromises that foundational determination by HDR. And a peer review provided herein corroborates those conclusions.

Finally, we continue to be puzzled by this entire process by the City, including the September 21 hearing. As noted, the Project entitlements are vested, substantial evidence stands un-refuted in the record that the Project and Terminal as proposed can and will bring a new level of regulatory control and oversight to the area, and all of the beneficial reasons for the community that the City originally embraced the vision for the Project remain unchanged.

Should you have any questions regarding the materials provided herein, please to not hesitate to let us know.

Sincerely,

Phil Tagami
CALIFORNIA CAPITAL AND INVESTMENT GROUP
OAKLAND BULK AND OVERSIZED TERMINAL

Jerry Bridges
TERMINAL LOGISTIC SOLUTIONS

CCIG/OBOT/TLS RESPONSE TO CITY 9/28/15 QUESTION #1

1) **How should "Project" and "Adjacent Neighbors" be defined pursuant to Development Agreement (DA) Section 3.4.2 ("existing or future occupants or users of the Project, Adjacent Neighbors, or any portion thereof, or all of them, in a condition substantially dangerous to their health or safety")**
   - **Project - All private development subject to the Development Agreement which include the West, East and Central Gateway Development Area Leases, or just the West Gateway Development Area Lease portion which includes the location of the Break Bulk Terminal and rail right-of-way?**
   - **Adjacent Neighbors-The Army Base Redevelopment Plan Area, West Oakland Specific Plan Area, all of West Oakland, some other geographic area?**

a. "Project": The development, use and occupancy of the Private Improvements on the Project Site pursuant to the City Approvals, the Subsequent Approvals and this Agreement, as identified in Recital H and described in Exhibit D.

The foregoing incorporates the following defined terms:

Private Improvements: The term "Private Improvements" shall have the definition ascribed to the same in the LDDA. The LDDA defines the term "Private Improvements" as the mixed-use industrial (warehousing and logistics), commercial, maritime, rail, and related support uses, as defined in the Scope of Development for the Private Improvements set forth in Attachment 7 to the LDDA (See Exhibit 1-A attached).

Project Site: The real property described in Exhibit A to the Development Agreement. This property is limited to the property commonly referred to as the West Gateway, East Gateway and Central Gateway and the five billboard sites.

b. "adjacent neighbors". The term "adjacent neighbors" is not defined in the Development Agreement. The definition of the term "adjacent" is either "having a common border" or "nearby, not distant". Using the broader definition of "adjacent" - "nearby, not distant" - the term "adjacent neighbors" should be interpreted as occupants of structures located proximate to the Project Site. This would include the West Oakland neighborhood and its occupants, but would not include areas that are proximate or adjacent to incoming or outgoing modes of transportation that are not also proximate or adjacent to the Project Site.

EXHIBIT 1-A

Attachment 7 to LDDA – Schedule of Private Improvements
Scope of Development for the Private Improvements

The purpose of this Agreement is to provide for the development of the Lease Property into a new facility that supports the international, national, regional and local movement of goods by way of the seaport, railroad and roadway networks. Once constructed, the Private Improvements will include the following uses:

A. East Gateway: (The development of the following shall be subject to the provisions of the applicable Ground Lease.)

1. Trade & Logistics Uses: Up to 442,560 square feet (at any permissible FAR) of trade and logistics facilities (warehouse, distribution and related facilities), including, but not limited to, general purpose warehouses, cold and refrigerated storage, container freight stations, deconsolidation facilities, truck terminals, and regional distribution centers (collectively, "**EGW Trade & Logistics Uses**").

2. Ancillary Uses: Developer also may develop and operate, as uses that are ancillary and related to the EGW Trade & Logistics Uses, trailer and container cargo storage and movement, chassis pools, open storage and open truck parking, and other ancillary uses ("**EGW Ancillary Uses**").

3. Conditional Uses: Trailer and container cargo storage and movement, chassis pools, open storage and open truck parking (collectively, "**EGW Conditional Uses**"); provided, however, that EGW Conditional Uses may only be developed and operated independent of EGW Trade & Logistics Uses on the continuing condition that, and for so long as, Developer is in compliance with its obligations under the applicable Ground Lease.

4. Support Improvements. Private circulation, utility and rail spur improvements consistent with the Master Plan and ancillary and supplemental to the Public Improvements constructed by the City (collectively, "**EGW Support Improvements**").

B. Central Gateway: (The development of the following shall be subject to the provisions of the applicable Ground Lease.)

1. Trade & Logistics Uses: Up to 500,210 square feet (at any permissible FAR) of trade and logistics facilities (warehouse, distribution and related facilities), including, but not limited to, general purpose warehouses, cold and refrigerated storage, container freight stations, deconsolidation facilities, truck terminals, and regional distribution centers (collectively, "**CGW Trade & Logistics Uses**").

2. Ancillary Uses: Developer also may develop and operate, as uses that are ancillary and related to the CGW Trade & Logistics Uses, trailer and container cargo storage and movement, chassis pools, open storage and open truck parking, and other ancillary uses ("**CGW Ancillary Uses**").

3. Conditional Uses: Trailer and container cargo storage and movement, chassis pools, open storage and open truck parking (collectively, "**CGW Conditional Uses**"); provided, however, that CGW Conditional Uses may only be developed and operated independent of CGW Trade & Logistics Uses on the continuing condition that, and for so long as, Developer is in compliance with its obligations under the applicable Ground Lease).

4. Support Improvements. Private circulation, utility and rail spur improvements consistent with the Master Plan and ancillary and supplemental to the Public Improvements constructed by the City (collectively, "**CGW Support Improvements**").

C. West Gateway: (The development of the following shall be subject to the provisions of the applicable Ground Lease.)

1. Bulk Oversized Terminal: A ship-to-rail terminal designed for the export of non-containerized bulk goods and import of oversized or overweight cargo ("**Bulk Oversized Terminal**").

2. Railroad Improvements: Railroad tracks and related equipment necessary to adequately serve the Bulk Oversized Terminal as shown on the Master Plan. The Railroad Improvements are subject to reduction if Caltrans approves only one (1) rail line pursuant to Section 2.2.6.3 of the Agreement.

3. Ancillary Uses: Developer also may develop and operate, as uses that are ancillary and related to the Bulk Oversized Terminal and, trailer and container cargo storage and movement, chassis pools, open storage and open truck parking, and other ancillary uses (the "**WGW Ancillary Uses**").

4. Developer Funded Wharf Improvements: If Developer elects to construct the Developer Funded Wharf Improvements pursuant to Section 3.5.1 of the Agreement, Developer shall also construct the Developer Funded Wharf Improvements as defined in the Agreement.

5. Conditional Uses: Trailer and container cargo storage and movement, chassis pools, open storage and open truck parking (collectively, "**WGW Conditional Uses**"); provided, however, that WGW Conditional Uses may only be developed and operated independent of Bulk Oversized Terminal on the continuing condition that, and for so long as, Developer is in compliance with its obligations under the applicable Ground Lease.

6. Support Improvements: Private circulation, utility and rail spur improvements consistent with the Master Plan and ancillary and supplemental to the Public Improvements constructed by the City (collectively, "**WGW Support Improvements**").

D. Billboards.

Number	Billboard Location	Size	Sides	Display Type
1	Bay Bridge 300' East of Toll Plaza – South Line, East & West Face	20'H x 60'W	2	LED
2	Bay Bridge 800' East of Toll Plaza – South Line, West Face	20'H x 60'W	2	Backlit
3	I-880 West Grand 500' North of Maritime – West Line, North & South Face	14'H x 48'W	2	LED
4	I-880 West Grand South of Maritime – West Line, North & South Face	14'H x 48'W	2	Backlit
5	I-880 West Grand 600' South of Maritime– West Line, North & South Face	14'H x 48'W	2	LED

Notes:

Backlit Display: Static translucent sign lit from behind, traditionally has two ad faces (front and back).

LED Display: Changeable digital sign comprised of LED bulbs, can have as many as 12 rotating digital ads.

CCIG/OBOT/TLS RESPONSE TO CITY 9/28/15 QUESTION #2

2) **Based upon #1 above, what are the health and/or safety impacts of coal being transported from rail to ship at the Break Bulk Terminal on the existing or future occupants or users of the Project, Adjacent Neighbors, or any portion thereof, or all of them?**

In terms of air quality, the health and safety of occupants of the project (existing or future port workers) will be governed by California Occupational Safety and Health Administration (Cal/OSHA) regulations and employee-specific health and safety training and plans as required by Federal and State OSHA. Appropriate signage and workplace postings will also be necessary. A protocol for visitors to the facility will be established by the marine terminal operator(s). As explained in more detail in *HDR's Air Quality & Human Health and Safety Assessment of Potential Coal Dust Emissions (September 2015)* (HDR Report) at pages 6-9, internal facility dust control technology and best management practices will be employed to keep indoor air quality and outdoor air quality <u>within the facility property</u> at acceptable levels as required under Cal/OSHA rules.

Regarding adjacent neighbors, their health and safety in terms of air quality will be governed by federal, California, and Bay Area Air Quality Management District (BAAQMD) regulations. As explained in the submitted HDR Report, internal facility dust control technology and best management practices will be employed to maintain air quality <u>outside the facility property</u> at acceptable levels as required under California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS), and air quality in the vicinity of the facility property will be monitored accordingly.

The TLS multi-commodity bulk terminal design and operational procedures will be developed in accordance with the project's CEQA Standard Conditions of Approval/Mitigation Monitoring and Reporting Program (SCA/MMRP), federal regulations, and permitting requirements, as delineated in the TLS Basis of Design Volume 1, Sections 5-7, submitted to the City of Oakland on September 8, 2015. Additionally, TLS will incorporate the design features and best management practices recommended in the HDR Report, which are state-of-the art controls for handling of bulk material at a marine terminal and represent enclosed operations for purposes of transferring commodities, including coal, from rail to ship.

CCIG/OBOT/TLS RESPONSE TO CITY 9/28/15 QUESTION #3

3) **Would TLS through CCIG/OBOT contractually agree to:**
   a. **Following the South Coast Air Quality Management District (SCAQMD) Rule 1158 restrictions?**

      Yes. If acceptable to the City, TLS will agree to comply with the SCAQMD Rule 1158. Per an October 2, 2015 conversation between Jerry Bridges, President of TLS and Jack Broadbent, Executive Office/Air Pollution Control Officer of BAAQMD, the current understanding is that BAAQMD is preparing their own "Rule 1158" and the process could take a year before adoption. Concurrently, TLS will be developing their bulk terminal plans and specifications, a final operation manual, and an air quality plan, which will be submitted for City approval as a condition precedent to issuance of a building permit pursuant to Ordinance No. 13183 C.M.S. These could include the applicable provisions/requirements of Rule 1158.

   b. **Only handle bituminous coal?**
      Yes. As a multi-commodity bulk terminal operation, TLS will handle a wide range of bulk products consistent with safe and lawful operation of the facilities designed. With respect to coal, if it is a commodity exported through the TLS bulk terminal, TLS will agree to handle only high-rank bituminous or anthracite-grade coal (coal that has reached ultimate maturation), the latter of which is currently used by EBMUD's water filtration system. (See Exhibit 3-A). It is important to note that the demands for various commodities change and no commodity has been specifically included or excluded from the TLS terminal operation.

   c. **Only use "covered" trains from the product source?**
      Yes. TLS will agree to use covered rail cars. While TLS will operate a multi-commodity bulk terminal, with respect to coal, if it is a commodity exported through the TLS bulk terminal, TLS proposes to use "EcoFab" rail car covers (or car covers with similar specifications provided by other manufactures). The lead vendor under consideration is "EcoFab", which has over 40 years of experience protecting bulk material in transit logging millions of miles of covered railcar mileage per month with a established record of reliability and safety. "EcoFab" is providing and maintaining thousands of covers in Canada, the United States, Australia and the South America. Materials handled by country include:

      - Argentina - Copper concentrate
      - Australia – Copper concentrate, lead concentrate, phosphate, grain
      - Canada – Copper concentrate, lead concentrate, zinc concentrate, nickel concentrate
      - Chile – Copper concentrate
      - USA – Copper concentrate, lead concentrate, nickel concentrate, low level radioactive soils, wood chips, low level radioactive waste, silver concentrate, steel castings

The Department of Transportation (DOT), has determined that the "Ecofab Railcar Cover System" meets the criteria for a closed transport vehicle, as specified in Title 49 CFR 173.403(c). The U.S. Federal Railroad Administration (FRA) has indicated to "EcoFab" that their cover design is compliant with North American Safety Appliance Regulations.
See the "EcoFab" website for details – www.ecofab.com.

d. **Abide by the proposed Basis of Design?**
Yes. While much lies ahead in terms of commodity selection, terminal design, and commodity-specific utility, TLS will agree to abide by the 4-volume Basis of Design submitted to the City of Oakland on September 8, 2015, which provides the foundation of minimum requirements that will apply to TLS facility development and operations, regardless of commodity being handled at any given time.

The TLS Basis of Design is intended to provide the City with context for the project's operating environment and desired performance parameters; and it is a project deliverable that marks the beginning of a process, as referenced in the introduction of Volume 1. Starting with the foundational information contained in the Basis of Design, through the Design Development and Construction Documents phases, the project operations manual, air quality plan, and MMRP compliance plan will be completed concurrent with the submittal of approximately 76 required permits.

e. **Incorporate all "protective measures" identified in TLS' July 15, 2015 letter?**
Yes. TLS will agree to incorporate all "protective measures" identified in the TLS July 15, 2015 letter and the Basis of Design submittal.

At this point in time, OBOT and TLS propose that any agreement regarding items 3(a) – (e) would be incorporated into the Subordination and Non-Disturbance Agreement between the City, OBOT and TLS that relates to the sublease between OBOT and TLS whereby OBOT and TLS would agree to be bound by the provisions of such agreement. Further, to the extent the agreed upon matters related to rail operations, TLS would agree to only accept shipments of the subject commodity that were handled pursuant to the agreed upon requirements. This would provide the City with the right to directly enforce the agreement against OBOT and TLS and, after the implementation of the agreed upon notice and cure procedures, require the termination of the ground lease if OBOT is the defaulting party or the sublease if TLS is the defaulting party.

Please note at the foregoing responses set forth OBOT and TLS' general concurrence with the applicable subject matter; however, such responses shall not be binding on OBOT or TLS unless and until a definitive written agreement regarding the same is entered into by the City, OBOT and TLS.

EXHIBIT 3-A

EBMUD Use of Anthracite Coal for Water Filtration

Description of Anthracite use at EBMUD

EBMUD operates six surface water treatment plants, as follows:

- Sobrante WTP
- Upper San Leandro WTP
- Orinda WTP
- Walnut Creek WTP
- Lafayette WTP
- San Pablo WTP

These WTPs are taken in and out of service for various operational and maintenance reasons. At any particular time, as few as two or as many as six WTPs may be in service providing drinking water.

Each of the six WTPs uses filtration to remove particulate material from the surface water as required by law. All six of the WTPs use a combination of anthracite and sand for the filter media, and all of them use gravity to move the water through the filters. As each filter becomes plugged with particulate material and the flow rate through it decreases, it is backwashed to clean it. Backwashing involves running clean water through the filter in reverse to dislodge the particles. As part of the backwashing process, some of the anthracite media can get washed out. Therefore, additional anthracite is sometimes added to each filter to maintain the depth needed for proper filtration. Depending on the plant and the backwashing conditions, supplemental anthracite may not be needed for many years. Aside from occasional supplementation, the anthracite media is not routinely replaced. It is a very inert material and resistant to degradation. Many of our anthracite filters are decades old. When new anthracite is purchased, it is specified to match the existing media (identical size and uniformity coefficient). All six WTPs use anthracite media consisting of grains that are approximately 1 mm in size.

Each of the Water Treatment Plants has a different number of filters, and the filters are different sizes. In some cases, each filter is divided into two boxes that can be backwashed separately. The following table summarizes the number of filter boxes at each WTP, the size of each box, the depth of the anthracite filtering media, and the total volume of anthracite in cubic feet.

	Number of filter boxes	length (ft)	width (ft)	total surface area (ft2)	depth (ft)	volume (ft3)
Sobrante WTP	8	48	24	9,216	2.50	23,040
Upper San Leandro WTP	10	30	40	12,000	2.50	30,000
Orinda WTP	40	20	30	24,000	2.08	50,000
Walnut Creek WTP, old	8	24	48	9,216	1.50	13,824
Walnut Creek WTP, new	8	24	48	9,216	3.00	27,648
Lafayette WTP, old	8	20	30	4,800	2.00	9,600
Lafayette WTP, new	8	20	31	4,960	2.00	9,920
San Pablo WTP	7	40	32.5	9,100	2.00	18,200

TOTAL: 182,232

ENTERED

APR 25 2014

By: _____

Invoice

911-24745-AE

Bill To

E.B.M.U.D.
Accounts Payable
PO Box 23060
Oakland, CA. 94623-2306

WW C 911 2008801 5 301

MATERIAL RECEIVED
BY _____ DATE 4/25-14

PRICED APPROVED
BY _____

REMIT TO:

KC INTERNATIONAL
33497 Carlsbad Circle
Thousand Palms, CA
92276

Invoice Date	Invoice Number	Purchase Order Number	Date Shipped	Terms
2/24/2014	8064 B		2/21/2014	Net 30

Item	Qty	Unit	Description	Unit Price	Extension
KCI-3 MM	16,500	Lbs	3 MM (70 CTC) virgin coal carbon (P/N 919647) delivered to Oakland plant.	2.90	47,850.00
KCI-3 MMR	16,500	Lbs	Custom Regenerated 3 MM carbon (P/N 919646) delivered	1.60	26,400.00
			Sales Tax	9.00%	~~4,306.50~~ 2376.00

Phone # 626-574-6875 Fax # 626-574-8458 E-mail ken@kcintl.net

TOTAL	~~$78,556.50~~

28776.00

ENTERED

APR 25 2014

By: _____

Invoice

911-24747-AE

Bill To

E.B.M.U.D.
Accounts Payable
PO Box 23060
Oakland, CA. 94623-2306

WW C 911 20088015 301
MATERIAL RECEIVED
BY _____ DATE 4/25/14
PRICED APPROVED
BY _____

REMIT TO:

KC INTERNATIONAL
33457 Carlsbad Circle
Thousand Palms, CA
92276

Invoice Date	Invoice Number	Purchase Order Number	Date Shipped	Terms
2/24/2014	8064 A		2/21/2014	Net 30

Item	Qty	Unit	Description	Unit Price	Extension
KCI-3 MM	16,500	Lbs	3 MM (70 CTC) virgin coal carbon (P/N 919647) delivered to Oakland plant.	2.90	47,850.00
KCI-3 MMR	16,500	Lbs	Custom Regenerated 3 MM carbon (P/N 919646) delivered	1.60	26,400.00
			Sales Tax	9.00%	4,306.50

TOTAL	~~$78,556.50~~

52,156.50

Phone # 626-574-6875 Fax # 626-574-8458 E-mail ken@kcintl.net

Questions# 4-6
have been removed from
this report intentionally
due to irrelavence of topic

CCIG/OBOT/TLS RESPONSE TO CITY 9/28/15 QUESTION #7

7) **If coal does not go through the Break Bulk Terminal, what are the reasonable assumptions for what will happen to that coal and why?**
TLS will operate a multi-commodity bulk terminal, and no commodity has been specifically included or excluded from the TLS terminal operation. If TLS ships coal, it will be through covered trains and facilities and it will limit its shipments to U.S. bituminous coal, which is some of the cleanest--lowest sulphur, least smog-causing--coal in the world. This is a vast improvement in the way coal is shipped, and Oakland will be a leader.

If the above question presupposes coal coming from Utah moving through the TLS multi-commodity bulk terminal, and queries where the Utah coal will be exported if not through TLS/OBOT, the product will continue to be shipped as it is today, through Stockton, CA; Levin Terminal in Richmond, CA; Pier G in Long Beach, CA; and may be shipped through the Ridley Terminal in Canada or the proposed Guaymas Terminal in Mexico in order to supply the market demands. (See Exhibit 7-A).

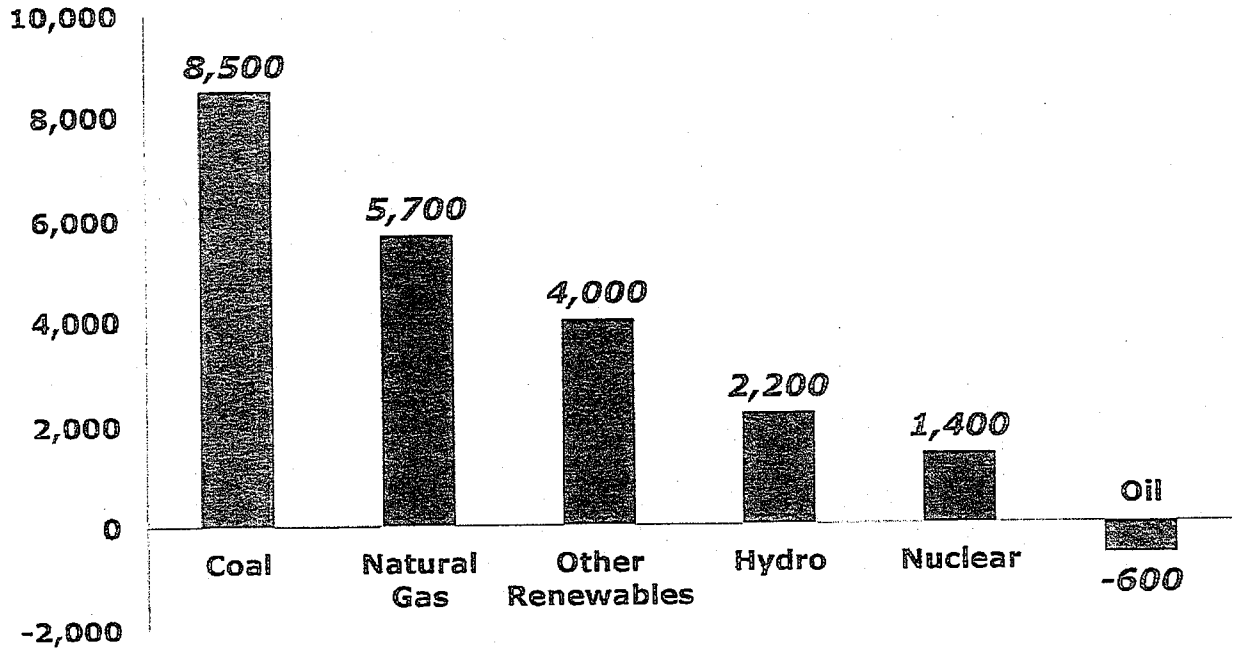
EXHIBIT 7-A

Global Electricity Growth

Global Electricity Growth to Rely on Coal More Than Any Other Fuel

Peabody

IEA Current Policy Scenario: Electricity Demand Increase 2012 – 2040 (Twh)

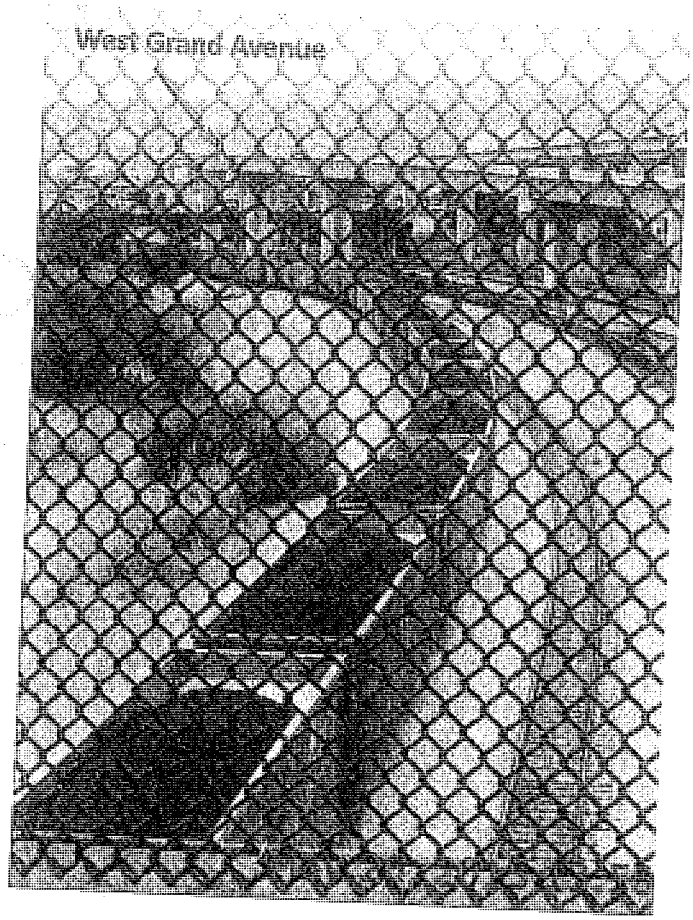


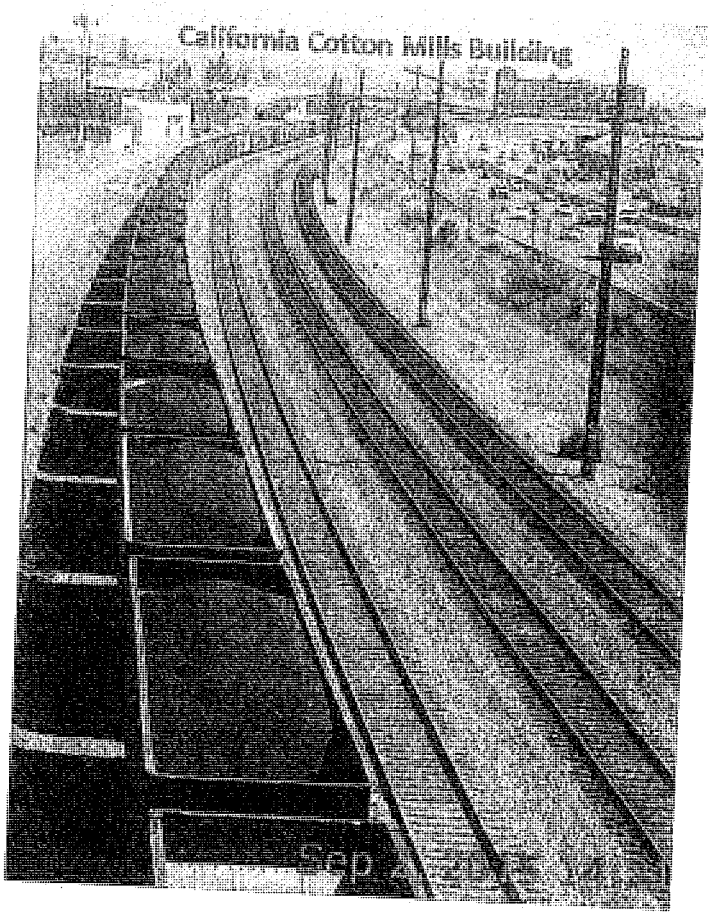
26 | Source: International Energy Association (IEA) World Energy Outlook 2014 (Current Policy Scenario).

CCIG/OBOT/TLS RESPONSE TO CITY 9/28/15 QUESTION #8

8) How much coal currently goes through the Port of Oakland on its way to the Richmond Port (or elsewhere)?

To our knowledge, uncovered unit trains do not move through the Port of Oakland, but adjacent to the Port, in the Union Pacific Railroad Right of Way, on the Martinez Subdivision track and Desert Rail Yard. TLS does not know how much coal may move through the Union Pacific Rail Right of Way, but has requested information on the quantities. A supplemental response will be submitted on the information becomes available. TLS understands that there may be 2 to 3 trains of coals per week moving through the Bay Area to the Richmond Levine Terminal and the Port of Stockton, and we are aware that coal trains have moved through Oakland on numerous occasions.





Question# 9
have been removed from this report intentionally due to irrelavence of topic

CCIG/OBOT/TLS RESPONSE TO CITY 9/28/15 QUESTION #10

10) What is the BAAQMD or other data on the impacts of coal at the Richmond Port?

We defer to BAAQMD's response on this question.

CCIG/OBOT/TLS RESPONSE TO CITY 9/28/15 QUESTION #11

11) Has there been a detailed review/analysis performed of the CCIG/OBOT commissioned September 15, 2015 HDR Engineering Air Quality & Human Health & Safety Assessment Report? Does that report adequately analyze the potential health and/or safety impacts as framed in Items# 1 and 2 above? If not, why?

Yes, there has been a detailed review/analysis performed of the CCIG, OBOT, and TLS commissioned September 15, 2015 HDR Engineering Air Quality & Human Health & Safety Assessment Report (the HDR Report). To complete this peer review of the HDR Report, CCIG enlisted the expertise of Golder Associates, Inc. (Golder), more specifically Chad Darby and Dr. Kara Warner. See Exhibit 11-A for a copy of the Golder peer review.

EXHIBIT 11-A

Golder Peer Review of HDR Report

Golder Associates

Project No. 1540570

October 4, 2015

California Capital & Investment Group
300 Frank H. Ogawa Plaza

Oakland, CA 94612

RE: Response to Question No. 11 / Memo to Interested Parties from Claudia Cappio (Assistant City Administrator, City of Oakland) Dated 9/28/15

Dear California Capital & Investment Group:

On September 28, 2015, Ms. Claudia Cappio, the City of Oakland's Assistant City Administrator, issued a memo containing "Follow-up Questions on Coal's Public Health and/or Safety Impacts." As you know, California Capital & Investment Group (CCIG) recently hired Golder to perform a peer review of the HDR Engineering Air Quality & Human Health & Safety Assessment Report (September 15, 2015), which is the subject of Question No. 11 of Ms. Cappio's memorandum. Question No. 11 reads as follows:

> *Has there been a detailed review/analysis performed of the CCIG/OBOT commissioned September 15, 2015 HDR Engineering Air Quality & Human Health & Safety Assessment Report? Does that report adequately analyze the potential health and/or safety impacts as framed in Items #1 and 2 above? If not, why not?*

In response to this question, CCIG should answer unequivocally that, yes, there has been a detailed review/analysis performed of the CCIG/OBOT (Oakland Bulk and Oversized Terminal) commissioned September 15, 2015 HDR Engineering Air Quality & Human Health & Safety Assessment Report (the HDR Report). To complete this peer review of the HDR Report, CCIG enlisted the expertise of Golder, more specifically Chad Darby and Dr. Kara Warner.

Chad Darby is a Senior Consultant with Golder Associates, Inc. (Golder). He has 24 years of experience in monitoring and analyzing air quality impacts, and application of emissions control technologies to commercial and industrial sites. He is particularly familiar with air quality modeling, monitoring, and emissions control technologies in regards to the handling of coal in rail and port terminals as he was recently the Project Manager for an extensive air modeling and assessment of a proposed coal transloading facility at the Port of Morrow near Boardman, Oregon. Please see Attachment 11-A for a copy of his credentials.

Dr. Kara Warner is a toxicologist with Golder. She has 9 years of experience in assessing ecologicial and human health risks associated with commercial and industrial activities. She is particularly familiar with assessing ecological and human health risks as they related to coal-handling operations, including rail transport and port terminal operations. Among various other coal-related projects, she recently performed such work on the Port of Morrow project. Please see Attachment 11-A for a copy of her credentials.

Golder Associates Inc.
9 Monroe Parkway, Suite 270
Lake Oswego, OR 97035 USA
Tel: (503) 607-1820 Fax: (503) 607-1825 www.golder.com

Golder Associates: Operations in Africa, Asia, Australasia, Europe, North America and South America

Golder, Golder Associates and the GA globe design are trademarks of Golder Associates Corporation

We recognize that the design of the facility is conceptual at this point. However, based on our experience with the similarly designed Port of Morrow project, for which Golder performed detailed emissions calculations, we can affirm HDR's conclusions to be fair and accurate that there will be minimal (if any) emissions from rail car transport or OBOT handling of coal. In fact, some of the commitments and recommendations to minimize coal dust emissions to the atmosphere such as the covering rail cars, fully enclosing the coal storage areas, and the wetting of coal as it is loaded on ocean-going vessels are, in our opinion, more conservative than necessary to protect human health.

In comparison, the Port of Morrow project was projected to utilize open rail cars having only a topping agent and profiling for mitigation that Golder estimated to have very minimal coal dust emissions to the atmosphere. Further, Golder conducted air quality dispersion modeling of those emissions and determined that concentrations of respirable dust were predicted to be well below the National Ambient Air Quality Standards, which are set by the U.S. Environmental Protection Agency to be protective of human health and the environment. With the even greater mitigation measures proposed for the OBOT project through their commitments and recommendations listed in their white paper, HDR is correct in asserting that there will be no harm to public health and the environment.

We have carefully reviewed the HDR Report and its qualitative assessments of potential emissions of coal dust from rail cars transporting coal to the OBOT, as well as potential emissions of coal dust from transfer and storage operations at OBOT itself. We noted three typographical errors in our review. Those errors include:

1. Page 5, indented and italicized quote- A reference to Sec. 13.5.2.1, should be Chapter 13, Sec. 2.5.1. However, the email hyperlink is correct.
2. Page 9, Section III, paragraph 1, line 5-6- "particular matter" should be "particulate matter" unless the original quote was in error.
3. Page 14, table- California Soil Background level for Pb (lead) should be 14.3 – 107.9 mg/kg. However, the conclusion stands that the range of lead concentrations in background California soils is higher than the maximum concentration found in Uinta Basin Coal based on the data source cited.

These typographical errors do not materially change the conclusions of the HDR white paper that are summarized as follows:

- Negligible emissions will result from transport of coal to OBOT;
- The limited coal dust emissions and deposition will not harm human health or the environment; and
- The conceptual design, commitments, and recommended mitigation strategies proposed to control atmospheric emissions are more than sufficient to protect human health.

If you have questions or need additional information, please let us know.

Sincerely,

Chad Darby, M.S. Mech Eng.,
Senior Consultant

Kara Warner, Ph.D.
Senior Project Environmental Scientist

Golder Associates Inc. – Portland

Education

MS Mechanical Engineering (Environmental Emphasis), University of Minnesota, Minnesota, 1991

BS Physics, Grinnell College, Iowa, 1988

Professional Affiliations

Air and Waste Management Association

National Council of Air and Stream Improvement

Professional Synopsis

Chad Darby has 24 years of professional experience in the air quality science and engineering field, with project management in 35 states and 3 Canadian provinces. This includes construction and operation permitting; field source testing with the US Environmental Protection Agency (EPA), National Institute for Occupational Safety and Health (NIOSH), Occupational Safety and Health Administration (OSHA), and state methodologies; ambient sampling and meteorological station design and installation; pollution control evaluation (Best Available Control Technology [BACT]/Reasonably Available Control Technology [RACT]/Lowest Achievable Emission Rate [LAER]); historical compliance investigations (New Source Review [NSR]/Prevention of Significant Deterioration [PSD]); multi-media compliance auditing; risk management planning (RMP); compliance assurance monitoring planning (CAM); Maximum Available Control Technology (MACT) applicability; strategy development; and compliance demonstration

PROJECT EXPERIENCE

Morrow Pacific Project; Coyote Island Terminal LLC
Boardman, Oregon and Clatskanie, Oregon

As project director, prepared a complex emissions inventory that included trains, tugboats, ocean-going vessels, transloading equipment, and stationary sources. Calculated methane emission decay rate for coal during transport and handling. Assisted with the air quality permitting and dispersion modeling for the proposed Coyote Island Terminal at the Port of Morrow, which is designed to handle 8.8 million tons of coal as a US west coast export terminal for Powder River Basin coal. Prepared toxicological literature evaluations of coal in air and water; project recommendations for emission control systems; and public comment support to agencies involved in addressing public concerns, including coal dust, diesel exhaust, and train and tug impacts. Studied and evaluated greenhouse gas emissions during transport and handling of coal, spontaneous coal combustion hazards, and dispersion of coal dust to air and water. Agencies involved include Oregon Department of Environmental Quality (DEQ), Department of State Lands (DSL), National Marine Fisheries Service (NMFS), US Army Corps of Engineers (USACE), State Historic Preservation Officers (SHPO), and four area tribes.

Columbia Pacific Bio-refinery
Clatskanie, Oregon

Expert witness hired by the representatives of the facility to testify regarding the emission levels and appropriateness for permitting actions for a facility that transloads crude oil from railcars to ocean-going barges. This included analysis of emission controls, fugitive emissions, emission source types and locations. Services include the development of emission calculations, interviews, site visits during transloading, writing an expert report, and providing a deposition.

Emission Testing; Tidewater Barge Lines
Vancouver, Washington

Calculated emissions of volatile organic compounds (VOCs) from barge cleaning performed with a vacuum truck. Using the ideal gas law, the total emissions of VOCs from vacuum truck exhaust and barge hold air displacement were determined for situations where barge holds containing gasoline are cleaned and filled with new product. Completed a Best Available Control Technology (BACT) analysis for control of barge venting emissions.

Title V Permitting; Chevron Portland, Oregon	Completed a Title V Operating Permit renewal application to incorporate facility modifications, including new distillation columns. Provided training in opacity monitoring evaluations using US Environmental Protection Agency (EPA) Method 22.
Title V Permitting; Tidewater Barge Lines Pasco, Washington	Prepared and submitted a Title V Operating Permit application for marine, tank car, pipeline, and railroad car petroleum; and chemical loading and unloading operations in 1995. Developed a comprehensive emission inventory for all emission sources, including operations and fugitive road dust from vehicle traffic. Additionally, assisted Tidewater Barge Lines in preparing Notice of Construction applications and in negotiating emission limitation orders. Assisted in calculating spill emissions using soil data and release reporting equations.
Aurora Uranium Mine; Oregon Energy LLC Oregon	Managed discussions between the Bureau of Land Management (BLM, Nuclear Regulatory Commission (NRC), Oregon Department of Geology and Mineral Industries (DOGAMI), and the Oregon Department of Energy (DOE) for a proposed uranium mine in southeastern Oregon near McDermitt, Nevada. Developed a workplan for baseline studies covering all aspects including geologic studies; air quality monitoring; threatened and endangered species and cultural surveys; acoustical sampling; and numerous other baseline studies. Assisted with all siting, permitting, and National Environmental Policy Act (NEPA) evaluation compliance aspects of the project.
Biomass-fired Co-generation Unit; Roseburg Forest Products California	Provided air quality permitting support for a biomass-fired co-generation project in Weed, California. The permit was issued, but challenged all the way to the California Supreme Court where it was upheld. Completed the Authority to Construct Application and draft permit for approval by the Siskiyou County Air Pollution Control District (SCAPCD). In addition, a Modification Application for the Title V Permit was developed and a revised draft permit was submitted for approval by the SCAPCD. To support this, an extensive emissions inventory for the boiler, cooling tower, mobile sources, and construction equipment/disturbances was prepared. Cooling tower emissions of particulate matter from water mineral content and drift loss were estimated. Similarly, emissions of diesel particulate from facility vehicles, construction equipment, and ongoing fuel handling equipment were calculated. As part of the application process, Best Available Control Technologies (BACTs) for boiler nitrogen oxide (NOx) emissions were assessed. Under the California Environmental Quality Act (CEQA), the co-generation project required an Environmental Impact Report (EIR) by the County Planning Department. To support this, air dispersion modeling was conducted for criteria pollutants and air toxics using AERMOD modeling. Plume depletion for particulate was accounted for near the property line. Assisted in comparing the emissions from the project to alternate wood combustion processes including slash-and-burn forestry techniques. Because greenhouse gases are a regulatory issue in California, greenhouse gas emissions were evaluated for the co-generation project and project alternatives, including the impacts of in-forest decay of thinning materials, the no-project alternative.

Golder Associates Inc. – Portland

Education

PhD, Toxicology, Oregon State University, Corvallis, Oregon, 2006

MS, Biology, Texas State University, San Marcos, Texas, 2001

BA, Zoology, University of Texas, Austin, Texas, 1997

Senior Project Environmental Scientist

Dr. Kara Warner has an interdisciplinary background in biology, physiology, and toxicology. Kara's project experience includes environmental impact assessment components, ecological and human health risk assessments, water quality, air quality, permitting, and regulatory compliance. She has assisted with Environmental Impact Assessment (EIS) projects and managed Oregon Energy Facility Siting projects that required analysis of impacts to populations and housing, land use, public health and safety, public services, visual resources, cultural resources, recreational opportunities, and natural resources/habitats.

Many of Kara's projects include public involvement, and Kara has presented at informational meetings, organized and addressed public comments, and identified key issues for agency consideration.

PROJECT EXPERIENCE – ENVIRONMENTAL ASSESSMENT & PERMITTING

Environmental Coal Dust Exposure and Human Health Impact Assessment for the Morrow Pacific Coal Transfer Project; Schwabe, Williamson, and Wyatt
Port of Morrow, Oregon

Conducted a scientific literature review and prepared a summary report focusing on the potential human health impacts of exposure to coal dust associated with a transfer terminal project in Oregon. The report provided the public and interested stakeholders with an understanding of the relative toxicological properties of sub-bituminous coal particulates and chemical constituents in the context of environmental (non-occupational) human exposures. Potential environmental exposure levels and effects were presented relative to federal regulatory exposure guidelines for coal dust and particulate matter.

Potential Impacts Assessment from Coal in Surface Water; Schwabe, Williamson, and Wyatt
Port of Morrow, Oregon

Conducted a scientific literature review and prepared a summary report focusing on the potential environmental effects of an inadvertent coal discharge to the Columbia River. The report provided the public and interested stakeholders with an understanding of the relative toxicological inertness of bulk coal to aquatic receptors.

TransAlta Pit 7 EA; TransAlta Centralia Mining LLC
Centralia, Washington

Assisted in preparing an Environmental Assessment (EA) under the National Environmental Policy Act that analysed potential impacts from a proposed coal mine reclamation project in western Washington. This project required extensive coordination with the project proponent and the lead EA reviewing agency (Office of Surface Mining and Management).

Fording River Operations Swift Project Environmental Assessment Certification Application; Teck Coal Ltd.
British Columbia

Prepared an aquatic health assessment of potential impacts to aquatic species (including fish, invertebrates, amphibians, and aquatic-feeding birds) and determined the significance of impacts from the proposed coal-mining expansion project. The aquatic health assessment required coordination with multiple disciplines (including fish habitat, hydrology, and water quality modelling).

I-5 Corridor Reinforcement Project EIS; Bonneville Power Administration
Portland, Oregon

Coordinated with geographic information services (GIS) personnel to identify recreational resources, communities or managed lands, and census tract information for areas crossed by the project. Researched land use management plans, recreation management plans, and U.S. Census and American Community Survey data to identify potential impacts of the project alternatives to managed lands and low income or minority communities in Oregon and Washington. Prepared Recreation, Land, and Environmental Justice portions of the EIS.

Guidance on Health and Safety Research; Bonneville Power Administration
Portland, Oregon

Project manager for health and safety research services to the Bonneville Power Administration (BPA), advising on the potential and perceived human health impacts of electromagnetic fields (EMF), which included review of BPA technical and public information documents. Also participated in public scoping meetings for the planned 500-kilovolt BPA transmission line upgrade project in southwest Washington and northwest Oregon, serving as a third-party scientific perspective on electromagnetic fields and health issues for the EIS process.

Energy Facility Siting; Oregon Department of Energy
Oregon

Project manager for over 15 separate energy facility siting projects, reviewing site certificate applications or amendment requests and preparing recommendations for Oregon Department of Energy (ODOE) siting orders. Worked closely with ODOE siting officers to prepare recommendations for draft site certificate documents. Each project required an analysis of impacts to natural and social resources, land use, human health and safety, and public services. Projects included transmission lines, and wind, biomass, and gas-fired energy generation facilities. Under the ODOE contract, Kara attended site visits, public informational meetings, hearings, and Energy Facility Siting Council meetings.

Electromagnetic Field Health Effects White Paper; Oregon Department of Energy
Salem, Oregon

Project manager for a review of current scientific literature on the health effects of EMF. Due to the increase in proposed transmission projects in Oregon, the Oregon Department of Energy asked Kara to prepare a report reviewing the state of the science and national and international regulatory activities concerning EMF, to be used as part of an agency white paper. The review focused on human health effects, but also discussed effects to animals and vegetation relative to Oregon. Kara presented information on the state of the science and the regulatory climate surrounding EMF at a public meeting of the Energy Facility Siting Council.

Bravo Bentonite Mine Project Permitting; Bravo Bentonite LLC
Wasco County, Oregon

Assisted in developing a Plan of Operations for a proposed bentonite mine for Bureau of Land Management (BLM) review. The Plan of Operations describes the claim owner's analysis of resources at the site, the proposed plan of activities to develop a mine, and the potential environmental, cultural or archaeological, and economic impacts/environmental justice of mining operations. Finalized reports from technical staff for field surveys describing surface water and wetlands, biological resources, water sources, and cultural resources (the latter with Golder's subconsultant, Historical Research Associates). These reports were prepared to provide concise resource and impacts information for the Plan of Operations, and also to supplement the Environmental Assessment (EA) to be submitted to the BLM. In support of the Plan of Operations and the draft EA, Kara coordinated with GIS staff to perform a visibility analysis to demonstrate limited visibility of planned operations from a nearby Wild and Scenic River.

CCIG/OBOT/TLS RESPONSE TO CITY 9/28/15 QUESTION #12

12) What specific Standard Conditions of Approval and/or Mitigation Measures contained in the SCAMMRP would address the potential health and/or safety impacts of coal as framed in Items # 1 and 2 above?

The 2012 Standard Conditions of Approval and Mitigation, Monitoring and Reporting Program (SCA/MMRP), developed as part of the Initial Study/Addendum for the Oakland Army Base Project ("Project"), contains numerous measures that will mitigate potential health and/or safety impacts of operating the Break Bulk Terminal ("Terminal"), as well as the Project as a whole. As is and was appropriate in 2012, and as directed by CEQA itself, the analysis did not speculate over which commodity or commodities might come through the Terminal over its generational life. Rather, the CEQA review identified, and the SCA/MMRP mitigates, potentially significant impacts during all phases of the project – including construction and operations – comprehensively to ensure compliance irrespective of changing and evolving demands of the market from one month to the next, one decade to the next. In particular, the operator of the Terminal will comply with numerous air quality and water quality regulations intended to protect human health and the environment in the Project area. In addition, several measures are focused on ensuring adequate emergency preparedness, response and access to the Project area. These measures are imposed on all aspects of the Project, not solely to the operations of the Terminal and/or to the potential transport of coal, one of many goods that may or may not be shipped through the Terminal. Several of these measures are discussed below.

AIR QUALITY

The 2012 Initial Study/Addendum recognized that existing air quality in the Project area, already in a deteriorated state, was adversely impacted, particularly by diesel-related emissions, under baseline conditions. First and foremost, operation of the Project, including the Terminal, will comply with current stringent state and local regulations governing air quality, including those governing diesel emissions. In addition, the 2012 SCA/MMRP goes further and imposes additional requirements to minimize potential air quality impacts associated with the Project. Although some of the measures focus on minimizing potential health risk impacts associated with diesel particulate matter, they would more broadly address air quality impacts associated with Project operations, including those associated with the Terminal:

SCA AIR-3: Exposure to Air Pollution (Toxic Air Contaminants: Particulate Matter):

A. Indoor Air Quality: In accordance with the recommendations of the California Air Resources Board (ARB) and the Bay Area Air Quality Management District, appropriate measures shall be incorporated into the project design in order to reduce the potential health risk due to exposure to diesel particulate matter to achieve an acceptable interior air quality level for sensitive receptors. The appropriate measures shall include **one** of the following methods:

1) The project applicant shall retain a qualified air quality consultant to prepare a health risk assessment (HRA) in accordance with the ARB and the Office of Environmental Health and Hazard Assessment requirements to determine the exposure of project residents/occupants/users to air polluters prior to issuance of a demolition, grading, or building permit. The HRA shall be submitted to the Planning and Zoning Division for review and approval. The applicant shall implement the approved HRA recommendations, if any. If the HRA concludes that the air quality risks from nearby sources are at or below acceptable levels, then additional measures are not required.

2) The applicant shall implement all of the following features that have been found to reduce the air quality risk to sensitive receptors and shall be included in the project construction plans. These features shall be submitted to the Planning and Zoning Division and the Building Services Division for review and approval prior to the issuance of a demolition, grading, or building permit and shall be maintained on an ongoing basis during operation of the project.

    a) Redesign the site layout to locate sensitive receptors as far as possible from any freeways, major roadways, or other sources of air pollution (e.g., loading docks, parking lots).

    b) Do not locate sensitive receptors near distribution center's entry and exit points.

    c) Incorporate tiered plantings of trees (redwood, deodar cedar, live oak, and/or oleander) to the maximum extent feasible between the sources of pollution and the sensitive receptors.

    d) Install, operate and maintain in good working order a central heating and ventilation (HV) system or other air take system in the building, or in each individual residential unit, that meets or exceeds an efficiency standard of MERV 13. The HV system shall include the following features: Installation of a high efficiency filter and/or carbon filter to filter particulates and other chemical matter from entering the building. Either HEPA filters or ASHRAE 85% supply filters shall be used.

    e) Retain a qualified HV consultant or HERS rater during the design phase of the project to locate the HV system based on exposure modeling from the pollutant sources.

    f) Install indoor air quality monitoring units in buildings.

    g) Project applicant shall maintain, repair and/or replace HV system on an ongoing and as needed basis or shall prepare an operation and maintenance manual for the HV system and the filter. The manual shall include the operating instructions and the maintenance and

replacement schedule. This manual shall be included in the CC&Rs for residential projects and distributed to the building maintenance staff. In addition, the applicant shall prepare a separate homeowners manual. The manual shall contain the operating instructions and the maintenance and replacement schedule for the HV system and the filters.

B. Outdoor Air Quality: To the maximum extent practicable, individual and common exterior open space, including playgrounds, patios, and decks, shall either be shielded from the source of air pollution by buildings or otherwise buffered to further reduce air pollution for project occupants.

***

The 2012 SCA/MMRP also requires preparation of Project-specific emissions reduction programs. For example, Mitigation Measure 4.4-3b requires preparation of a rail and maritime emissions reduction program for the rail-related and maritime-related operations at the Project site. The program to be developed must give priority to emission reduction strategies that address PM10 emissions, which may include potential PM10 emissions associated with transport of goods, including coal, through the Terminal.

Mitigation 4.4-3b (West Gateway Rail and Maritime Emissions Reduction Program): The ground lessee of the West Gateway and the Railroad Right of Way ("WGW Ground Lessee") shall develop, for City review and approval, a criteria pollutant reduction program aimed at reducing or off-setting emissions from its rail-related and maritime-related operations, to the extent feasible, to less than significant levels, consistent with applicable federal, state and local air quality standards. The WGW Ground Lessee shall implement the approved program and shall periodically review and update the program every one to three years, concurrently with the update of the Bay Area Clean Air Plan.

The review and update shall include, and not be limited to, assessment of: potential new reduction strategies based on then-available technologies; funding requirements; technical feasibility; economic feasibility and cost benefit analysis. The updates shall be submitted to the City for its review and approval. The WGW Ground Lessee shall implement the City-approved, updated program.

The program shall give priority to emission reduction strategies that address PM10 emissions, but shall also provide for reductions in NOX and ROG emissions. The emission reduction program shall include a list of potential emission reduction strategies and shall define measurable reduction goals within specific time periods. Strategies that shall be included in the program may include without limitation:

- Requiring rail terminal operators to use switch engines that comply with federal air emission regulations for diesel operated locomotives as set forth in federal air regulations. In addition, the rail terminal operator and the WG Ground Lessee to

exchange information with the goal of investigating options to accelerate compliance with Tier 0, 1 and 2 requirements of the federal regulations.

- Encourage ships to implement source control technologies when in the West Gateway area (such as reduced hoteling).

- Working with tugboat operators to implement emission reduction control measures or to replace tugboat engines to low NOx technology.

The 2012 SCA/MMRP requires the Port of Oakland to prepare a similar program, which would contribute to overall emissions reductions associated with the Project and, like the West Gateway program, will give priority to emission reduction strategies that address PM10 emissions:

Mitigation 4.4-3a: The Port shall develop and implement a criteria pollutant reduction program aimed at reducing or off-setting Port-related emissions in West Oakland from its maritime and rail operations to less than significant levels, consistent with applicable federal, state and local air quality standards. The program shall be sufficiently funded to strive to reduce emissions from redevelopment related contributors to local West Oakland air quality, and shall continually reexamine potential reductions toward achieving less than significant impacts as new technologies emerge. The adopted program shall define measurable reductions within specific time periods.

This program shall be periodically reviewed and updated every one to three years, corresponding to regular updates of the CAP. The review and update shall include, and not be limited to, an assessment of any potential new strategies, a reassessment of funding requirements, technical feasibility, and cost benefit assumptions. Periodic updates shall be submitted to the City/Port Liaison Committee or its equivalent.

The pollutant reduction program shall give priority to emission reduction strategies that address PM10 emissions, but shall also provide for reductions in NOx and ROG emissions. The emission reduction program shall include a list of potential emission reduction strategies. Strategies that shall be included in the program and implemented over the buildout period include:

- The Port shall expand its existing cargo handling equipment re-powering and retrofitting program (part of the Berths 55-58 Project air quality mitigation program) to include marine and rail terminal yard equipment added or relocated as part of redevelopment build-out.

- The Port shall extend its grant program (part of the Berths 55-58 Project air quality mitigation program) to provide financial incentives to tugboat operators at New Berth 21 and other Port facilities to implement emission reduction control measures or to replace tugboat engines to low NOx technology.

- The Port shall require rail terminal operators to use switch engines at the New Intermodal Facility that comply with federal air emission regulations for diesel operated locomotives as set forth in federal air regulations. In addition, the rail terminal operator and the Port are to exchange information with the goal of investigating options to accelerate compliance with mTier 0, 1 and 2 requirements of the federal regulations.

- The Port shall not preclude in its design of the New Intermodal Facility the installation of an alternative fueling station and shall to the extent feasible accommodate such a fueling station.

- The Port shall encourage ships to implement source control technologies when in the port area (such as reduced hoteling).

- Other strategies to be included in the Port criteria pollutant reduction program when technically and economically feasible, include:

- Inclusion of an alternative fueling facility at the New Intermodal Facility.

HYDROLOGY AND WATER QUALITY

The 2012 SCA/MMRP imposes several requirements to mitigate potential impacts of water quality associated with Project operations, particularly measures aimed at minimizing the transport of pollutants via stormwater runoff. These measures include SCA HYD-2, SCA HYD-3, and Mitigation Measure 4.15-5:

SCA HYD-2: Post-Construction Stormwater Management Plan: The applicant shall comply with the requirements of Provision C.3 of the National Pollutant Discharge Elimination System (NPDES) permit issued to the Alameda Countywide Clean Water Program. The applicant shall submit with the application for a building permit (or other construction-related permit) a completed Construction-Permit-Phase Stormwater Supplemental Form to the Building Services Division. The project drawings submitted for the building permit (or other construction-related permit) shall contain a stormwater management plan, for review and approval by the City, to manage stormwater run-off and to limit the discharge of pollutants in stormwater after construction of the project to the maximum extent practicable.

a) The post-construction stormwater management plan shall include and identify the following:

    i. All proposed impervious surface on the site;

    ii. Anticipated directional flows of on-site stormwater runoff; and

    iii. Site design measures to reduce the amount of impervious surface area and directly connected impervious surfaces; and

iv. Source control measures to limit the potential for stormwater pollution;

v. Stormwater treatment measures to remove pollutants from stormwater runoff; and

vi. Hydromodification management measures so that post-project stormwater runoff does not exceed the flow and duration of pre-project runoff, if required under the NPDES permit.

b) The following additional information shall be submitted with the post-construction stormwater management plan:

i. Detailed hydraulic sizing calculations for each stormwater treatment measure proposed; and

ii. Pollutant removal information demonstrating that any proposed manufactured/mechanical (i.e., non-landscape-based) stormwater treatment measure, when not used in combination with a landscape-based treatment measure, is capable or removing the range of pollutants typically removed by landscape-based treatment measures and/or the range of pollutants expected to be generated by the project.

All proposed stormwater treatment measures shall incorporate appropriate planting materials for stormwater treatment (for landscape-based treatment measures) and shall be designed with considerations for vector/mosquito control. Proposed planting materials for all proposed landscapebased stormwater treatment measures shall be included on the landscape and irrigation plan for the project. The applicant is not required to include on-site stormwater treatment measures in the postconstruction stormwater management plan if he or she secures approval from Planning and Zoning of a proposal that demonstrates compliance with the requirements of the City's Alternative Compliance Program.

SCA HYD-3: Maintenance Agreement for Stormwater Treatment Measures: For projects incorporating stormwater treatment measures, the applicant shall enter into the "Standard City of Oakland Stormwater Treatment Measures Maintenance Agreement," in accordance with Provision C.3.e of the NPDES permit, which provides, in part, for the following:

i. The applicant accepting responsibility for the adequate installation/construction, operation, maintenance, inspection, and reporting of any on-site stormwater treatment measures being incorporated into the project until the responsibility is legally transferred to another entity; and

ii. Legal access to the on-site stormwater treatment measures for representatives of the City, the local vector control district, and staff of the Regional Water Quality Control Board, San Francisco Region, for the purpose of verifying the

implementation, operation, and maintenance of the on-site stormwater treatment measures and to take corrective action if necessary. The agreement shall be recorded at the County Recorder's Office at the applicant's expense.

Mitigation 4.15-5: Post-construction controls of stormwater shall be incorporated into the design of new redevelopment elements to reduce pollutant loads.

NPDES permitting requires that BMPs to control post-construction stormwater be implemented to the maximum extent practicable. Analysis of anticipated runoff volumes and potential effects to receiving water quality from stormwater shall be made for specific redevelopment elements, and site-specific BMPs shall be incorporated into design. BMPs shall be incorporated such that runoff volume from 85 percent of average annual rainfall at a development site is pre-treated prior to its discharge from that site, or a pre-treated volume in compliance with RWQCB policy in effect at the time of design.

Non-structural BMPs may include and are not limited to good housekeeping and other source control measures, such as the following:

- Stencil catch basins and inlets to inform the public they are connected to the Bay;
- Sweep streets on a regular schedule;
- Use and dispose of paints, solvents, pesticides, and other chemicals properly;
- Keep debris bins covered; and
- Clean storm drain catch basins and properly dispose of sediment.

Structural BMPs may include and are not limited to the following:

- Minimize impervious areas directly connected to storm sewers;
- Include drainage system elements in design as appropriate such as:
    - infiltration basins
    - detention/retention basins
    - vegetated swales (biofilters)
    - curb/drop inlet protection.

EMERGENCY RESPONSE
[PUBLIC SERVICES/ TRAFFIC AND TRANSPORTATION MEASURES]

The 2012 SCA/MMRP also contains several measures focused on ensuring adequate fire safety plans, emergency response capabilities and emergency access to the Project area. Implementation of these measures will further promote the health and safety of workers, in particular, in the Project. Several of these measures are included below:

SCA PSU-2: Fire Safety Phasing Plan: The project applicant shall submit a separate fire safety phasing plan to the Planning and Zoning Division and Fire Services Division for their review and approval. The fire safety plan shall include all of the fire safety features incorporated into the project and the schedule for implementation of the features. Fire Services Division may require changes to the plan or may reject the plan if it does

not adequately address fire hazards associated with the project as a whole or the individual phase.

Mitigation 4.9-1. The City and Port shall cooperatively investigate the need for, and if required shall fund on a fair-share basis, development and operation of increased firefighting and medical emergency response services via fireboat to serve the OARB sub-district.

The City and Port of Oakland will each contribute a fair share toward cooperatively investigating the need for increased firefighting and emergency response services to serve the redevelopment area west of I-880. This investigation shall include consultation with the OES and OFD. Should this investigation conclude, based on detailed redevelopment design, that increased fireboat services are required, the Port and the City shall each fund its fair share to equip and staff fireboat-based services in the OARB sub-district. In addition, as subsequent redevelopment activities occur, the City and Port shall be allowed to develop fee formulae (to recoup initial investment from future development or tenants), as well as a long-term cost-sharing formula (to equitably distribute the cost of continuing operations).

The fire facility will be constructed after basic underground infrastructure is constructed, and before any people-attracting subsequent redevelopment activities begin operations.

Mitigation 4.9-2: The Port and City shall work with OES to ensure changes in local area circulation are reflected in the revised Response Concept.

The Port and City would provide information to the OES to facilitate that agency's accurate revision of its Response Concept and Annex H. In particular, the City and Port would provide OES information regarding new and proposed project area development, intensification and changes in land uses, realignment of area roadways, and construction of new local circulation facilities.

Mitigation 4.3-8: Provide an emergency service program and emergency evacuation plan using waterborne vessels.

The City shall provide emergency access to the OARB sub-district by vessel. The area is currently served by fire boat out of the Jack London Square Fire Station. The City may elect to equip that fire boat with first response medical emergency personnel as well as limited hazardous materials response personnel and equipment (see also Mitigation Measure 4.9-1). Major developers shall fund these improvements on a fair share basis.

Mitigation Measure 3.16-15a: The Project Sponsor shall develop, in consultation and coordination with adjacent property owners, including EBMUD, an emergency response plan for the 2012 Army Base Project, which addresses emergency ingress/egress.

Mitigation Measure 3.16-15b: The Project Sponsor shall include in the design of West Burma Road turn-outs and turn-arounds at the appropriate locations and dimensions as

required by the Fire Department, in order to allow for appropriate ingress and egress of emergency vehicles.

***

Several safety measures are also specifically focused on ensuring safety associated with rail operations, including the following:

SCA TRANS-3: Railroad Crossings: Any proposed new or relocated railroad crossing improvements must be coordinated with California Public Utility Commission (CPUC) and affected railroads and all necessary permits/approvals obtained, including a GO 88-B Request (Authorization to Alter Highway Rail Crossings), if applicable. Appropriate safety-related design features and measures should be incorporated, including without limitation:

a) Installation of grade separations at crossings, i.e., physically separating roads and railroad tracks by constructing overpasses or underpasses.

b) Improvements to warning devices at existing highway rail crossings that are impacted by project traffic.

c) Installation of additional warning signage.

d) Improvements to traffic signaling at intersections adjacent to crossings, e.g., signal preemption.

e) Installation of median separation to prevent vehicles from driving around railroad crossing gates.

f) Where soundwalls, landscaping, buildings, etc. would be installed near crossings, maintaining the visibility of warning devices and approaching trains.

g) Prohibition of parking within 100 feet of the crossings to improve the visibility of warning devices and approaching trains.

h) Construction of pull-out lanes for buses and vehicles transporting hazardous materials.

i) Installation of vandal-resistant fencing or walls to limit the access of pedestrians onto the railroad right-of-way.

j) Elimination of driveways near crossings.

k) Increased enforcement of traffic laws at crossings.

l) Rail safety awareness programs to educate the public about the hazards of highway-rail grade crossings.

CCIG/OBOT/TLS RESPONSE TO CITY 9/28/15 QUESTION #13

13) With respect to "Covered" Rail Cars:

a. **Are "Covered" rail cars being used or tested in the U.S. or elsewhere?**
"EcoFab" is providing and maintaining thousands of covers in Canada, the United States, Australia and the South America. See Exhibit 13-A.

In the United States, they are used on the following materials: copper concentrate, lead concentrate, nickel concentrate, low level radioactive soils, wood chips, low level radioactive waste, silver concentrate, and steel castings.

In other countries, "EcoFab" covered rail cars are used to transport the following:

- Argentina - Copper concentrate
- Australia – Copper concentrate, lead concentrate, phosphate, grain
- Canada – Copper concentrate, lead concentrate, zinc concentrate, nickel concentrate
- Chile – Copper concentrate

b. **Have tests been run on such technology?**
"EcoFab" has over 40 years of experience protecting bulk material in transit logging millions of miles of covered railcar mileage per month with a record of reliability and safety.

The Department of Transportation (DOT), has determined that the "Ecofab Railcar Cover System" meets the criteria for a closed transport vehicle, as specified in Title 49 CFR 173.403(c). The U.S. Federal Railroad Administration (FRA) has indicated to "EcoFab" that their cover design is compliant with North American Safety Appliance Regulations.

c. **Are there engineering specifications available for review?**
"EcoFab" has over 40 years of experience protecting bulk material in transit logging millions of miles of covered railcar mileage per month with a record of reliability and safety. See the "EcoFab" website for details – www.ecofab.com.

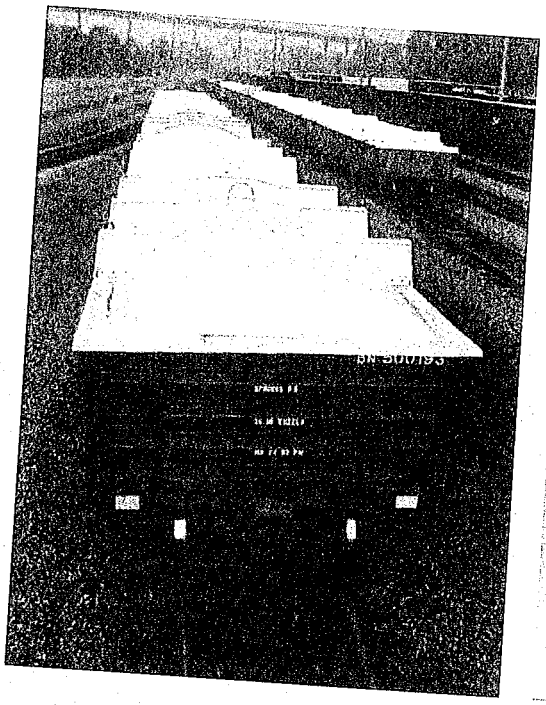
d. **How effective would these "Covered" cars be in reducing/eliminating fugitive coal dust emissions, both in absolute terms and as compared to other means (see Item #14 below)**
As provided in the HDR white paper submitted to the City in advance of the September 21, 2015, informational hearing, covering of rail cars is not a prerequisite to the safe and legal shipping of coal by rail cars. Any potentially material release of fugitive dust from rail cars is adequately mitigated via the use of standard industry best management practices including the application of surfactants and specific stacking and layering of coal. Utilization of such measures, as documented in the HDR white paper, eliminates health and safety

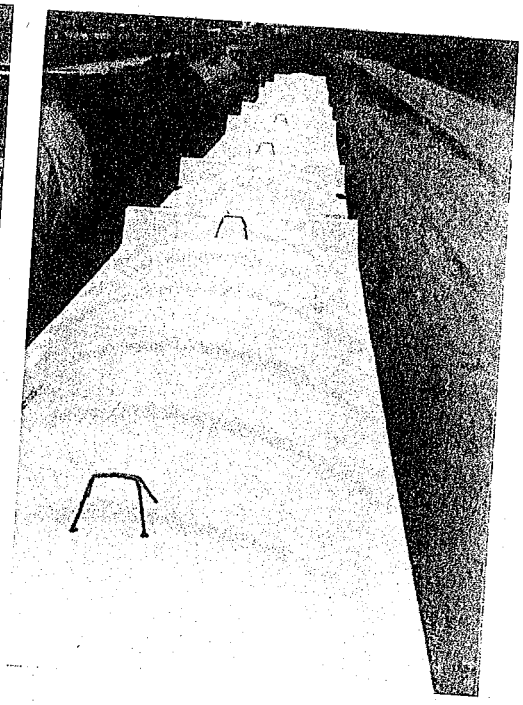
concerns related to coal transport, and TLS has agreed to incorporate the measures specified in the HDR white paper into all Terminal operations, regardless of commodity at issue.

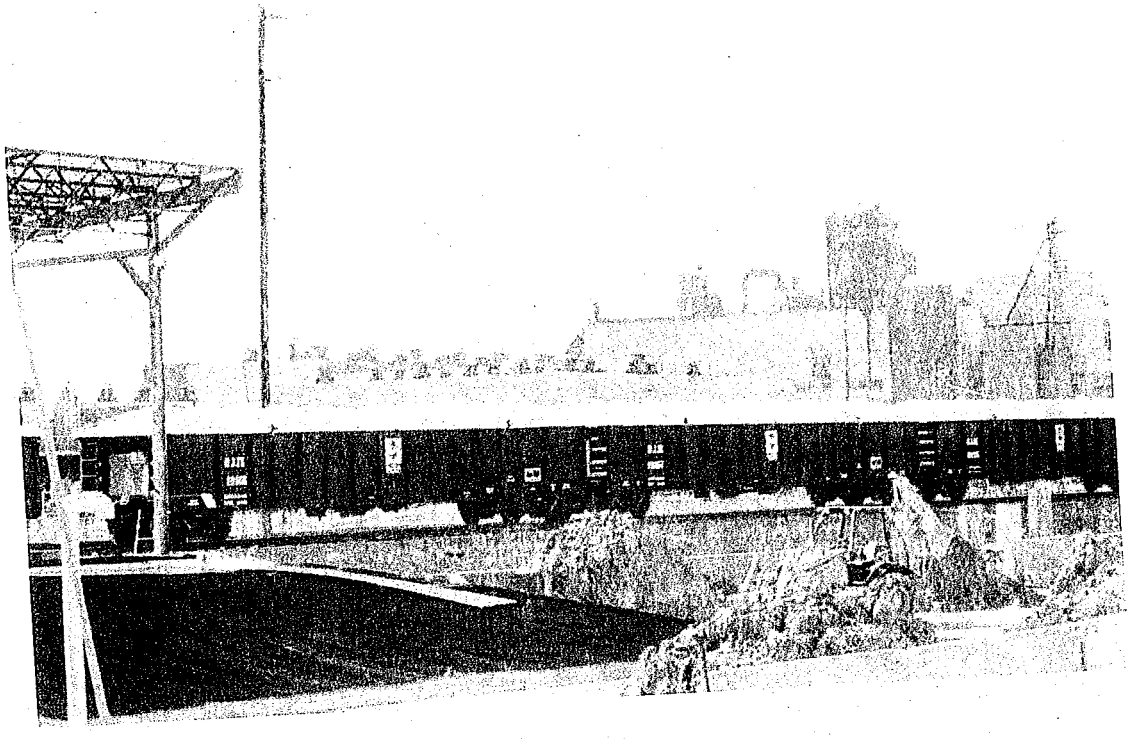
TLS has taken the additional measure of committing to covering rail cars. At this time, it anticipates working with "EcoFab" to implement this practice. "EcoFab" has over 40 years of experience protecting bulk material in transit logging millions of miles of covered railcar mileage per month with a record of reliability and safety. See the "EcoFab" website for details – www.ecofab.com.

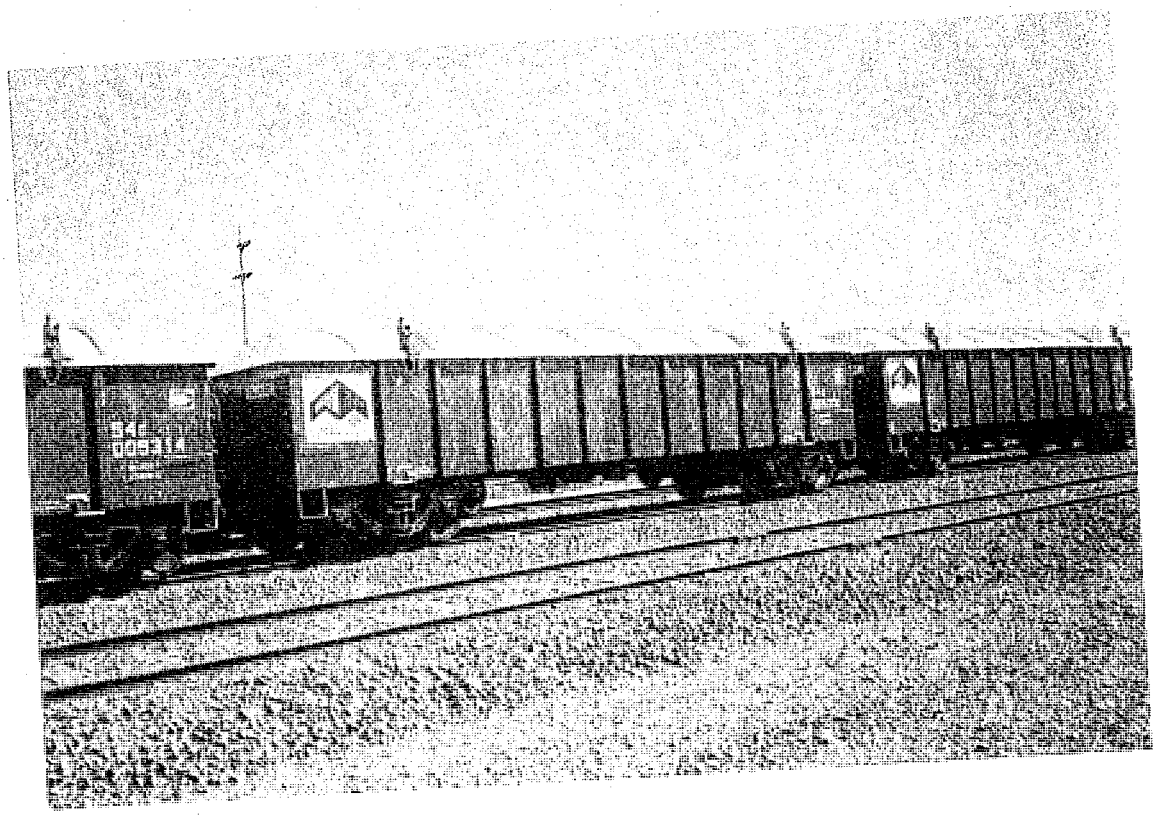
EXHIBIT 13-A

"EcoFab" Covered Rail Cars









CCIG/OBOT/TLS RESPONSE TO CITY 9/28/15 QUESTION #14

14) If "Covered" Rail cars are not used, then what would be done to reduce/eliminate fugitive coal dust emissions:

TLS will operate a multi-commodity bulk terminal, and no commodity has been specifically included or excluded from the TLS terminal operation. TLS has agreed to use covered car to mitigate all fugitive dust issues, thus this question is inapplicable to its facility. Nevertheless, we provide the following answers:

a. **Water-how much, where from, where does it go?**
No water would be used on rail cars; misting/wetting using recycled water to minimize coal dust would be used only at the TLS terminal at OBOT due to the transfer operations there. See responses to Question No. 15 below for more information on anticipated recycled water use at the TLS terminal at OBOT.

b. **Spray-what kind of materials, how much?**
Because TLS has committed to using covered rail cars, it has not determined which specific dust suppressant it would use with open rail cars to minimize commodity dust emissions. If TLS were to use open rail cars (which is does not intend to do), a further assessment would need to be completed to determine an appropriate dust suppressant available on the market at that time for use the selected commodity, as well as an appropriate specification for applying that dust suppressant.

Specific to coal, there are numerous surfactant options that are currently and effectively used by the industry, such as "Soil Sement", which is manufactured by Midwest Industrial Supply, has been approved for use by the Burlington Northern Santa Fe and Union Pacific Railroads. The product passed extensive testing during the Super Trial that was run by the BNSF Railroad with cooperation of the commodity suppliers in the Wyoming Powder River Basin during the spring of 2010.

BNSF Tariff #6041-B went into effect on October 1, 2011. This tariff requires that a minimum dust reduction rate of 85% has to be met by the commodity producers in the Powder River Basin. Test results proved that "Soil Sement" exceeded this percentage. The application rate of "Soil Sement" currently used in the PRB is 1.25 gallons of chemical per 17.50 gallons of water applied to the top of the commodity in each rail car. This application provides a crust that averages a depth of 1" of the commodity pile. See Exhibit 14-A for the "Soil Sement" Material Safety Data Sheet.

c. **Other measures?**
If covered rail cars were not used, a combination of industry best management practices (BMPs) would be used to control dust as discussed on pages 3-6 of the HDR Report. These BMPs would include:

- profiling of the loads on the rail cars to make the piles more aerodynamic and less subject to wind erosion,
- packing of the coal to leave fewer air spaces for wind to dislodge coal particles, and
- application of a topping agent on the top of the coal in the rail cars, to keep dust particles from escaping.

d. How effective are these measures both in absolute terms and as compared "covered" cars?

As discussed in the HDR Report, studies show that the use of profiling and topping agents in open rail cars reduces coal dust emissions by more than 85%. That said, TLS has committed to using covered rail cars, which would approach 100% control efficiency.

Finally, it is important to note that recently submitted comments by Dr. Bart Ostro (formerly of the California EPA) erroneously refer to a study done by Jaffe et al. (2014) published in *Atmospheric Pollution Research* (5:344-351) as "one of the few actual studies" that supports a conclusion that $PM_{2.5}$ concentrations from trains carrying coal are higher than $PM_{2.5}$ concentrations from trains carrying common freight. See page 3-4 of Dr. Ostro's 9/29/15 submission. It is important to note that the Jaffe study used a measurement device that was not calibrated for coal dust, and therefore its results do not prove that the incremental increase in fine particulate matter from coal train passage (compared to other types of freight trains) was either (a) coal dust or (b) in the $PM_{2.5}$ range.. More specifically, the DRX monitors used in the Jaffe study were NOT calibrated for coal dust detection, but rather were calibrated for diesel particulate matter detection, using a federal equivalent reference method (TOEM) monitor sited in a Seattle area dominated by diesel particulate matter. Thus, the results of that study do not support the conclusion for which Dr. Ostro cites it.

In addition, Dr. Ostro tries to undermine the Tongue River modeling of coal dust emissions from open rail cars by pointing out that applicable air quality standards and background concentrations in Montana for $PM_{2.5}$ are more forgiving than applicable air quality standards for $PM_{2.5}$ in the BAAQMD. That may be true, but it ignores some important facts:

Notwithstanding the above, even if you assumed that the incremental fine particulate matter increase from a coal train passage measured in the Jaffe report is in the $PM_{2.5}$ range, the incremental increase is only around 3 $\mu g/m^3$ for a 3-minute period (see Figure 6 of the Jaffe paper). Assuming (i) the trains studied by Jaffe were going 60 mph, (ii) 3 trains per day are passing through Oakland to deliver coal to the terminal (three trains/day of coal would be the maximum forecasted for the TLS terminal at OBOT throughput) and (iii) the trains through Oakland are moving at 30 mph, the 3-minute period of exposure per train measured in the Jaffe report would be equivalent to a 6-minute period of slightly elevated $PM_{2.5}$. This would occur up to three times a day based on the maximum

coal train volume forecasted by TLS for the OBOT.. Averaging this slightly elevated exposure over 24 hours results in a daily $PM_{2.5}$ increase of only 0.0375 $\mu g/m^3$, which is not a measurable level of impact on the air quality in Oakland (note the 24-hour PM2.5 NAAQS is equal to 35 $\mu g/m^3$).

EXHIBIT 14-A

"Soil Sement" Material Safety Data Sheet

MIDWEST INDUSTRIAL SUPPLY, INC.
1101 Arlington Avenue, Canton, Ohio 44707 USA
Emergency Phone Number - 330-455-0241

SOIL-SEMENT®

MATERIAL SAFETY DATA SHEET

SECTION I – IDENTIFICATION OF SUBSTANCE/PREPARATION AND COMPANY/UNDERTAKING

TRADE NAME:	SOIL-SEMENT®
CHEMICAL NAME:	POLYMER EMULSION
SYNONYMS:	DUST RETARDANT
CHEMICAL FAMILY:	N/A
MOLECULAR WEIGHT:	N/A
FORMULA:	AQUEOUS ACRYLIC VINYL ACETATE POLYMER EMULSION
CAS REGISTRY NO.:	PRODUCT A BLEND - NO NUMBER ASSIGNED

SECTION II – COMPOSITION/INFORMATION ON INGREDIENTS

NAME	CAS REG NO.	WT. %
Acrylic & Vinyl Acetate Polymer	Non-hazardous	5-50
Water	7732-18-5	95-50

SECTION III – HAZARDS IDENTIFICATION

Acrylic & Polyvinyl Acetate Polymer	Non-hazardous
Water	Non-hazardous

HMIS Rating: Health = 0 Flammability = 0 Reactivity = 0

SECTION IV – FIRST AID MEASURES

EYES:	Flush eyes with flowing water at least 15 minutes, get medical attention.
INHALATION:	Move subject to fresh air.
SKIN:	Flush with large amount of water or wash with soap and water.
INGESTION:	Give water to drink. Call a physician. NEVER GIVE FLUIDS OR INDUCE VOMITING. IF PATIENT IS UNCONSCIOUS OR HAVING CONVULSIONS.

SECTION V – FIREFIGHTING MEASURES

FLASH POINT (TEST METHOD):	Non-Combustible
AUTOIGNITION TEMPERATURE:	N/A
EXTINGUISHING MEDIUM:	N/A
SPECIAL FIREFIGHTING PROCEDURES:	N/A
UNUSUAL FIRE AND EXPLOSION HAZARDS:	Material can splatter above 212°F. Dried polymer film can burn but will not support combustion.

SECTION VI – ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK PROCEDURES: Dike and control spill. Transfer liquid to containers for recovery or disposal. Keep spills out of sewers and open bodies of water.

SECTION VII – HANDLING AND STORAGE

STORAGE: Keep in a cool, dry, ventilated storage area and in closed containers. Avoid freezing temperatures. Minimize contact with the air to prevent microorganism contamination and reduce the formation of skins on the surface.

HANDLING: Handle in a well-ventilated workspace.

SECTION VIII – EXPOSURE CONTROL/PERSONAL PROTECTION

RESPIRATORY PROTECTION:	None required if good ventilation is maintained.
VENTILATION:	Mechanical exhaust at point of contaminant.
EYE PROTECTION:	Chemical splash goggles recommended.
PROTECTIVE CLOTHING:	Impervious gloves recommended.
OTHER:	Under normal handling conditions, the risk of exposure to residual monomer is negligible.

SECTION IX – PHYSICAL AND CHEMICAL PROPERTIES

BOILING/MELTING POINT @ 760 mm Hg:	212°F
VAPOR PRESSURE mm Hg @ 20°C:	17
SPECIFIC GRAVITY OR BULK DENSITY:	1.01 to 1.15
SOLUBILITY IN WATER:	Dilutable
APPEARANCE:	Milky White Liquid
ODOR:	Characteristic Acrylic odor
pH:	4.0 to 9.5
VOC Content:	0 % (weight)

SECTION X – STABILITY AND REACTIVITY

STABILITY:	Stable
CHEMICAL INCOMPATIBILITY:	No hazardous reactions are expected to occur under normal industrial conditions.
HAZARDOUS DECOMPOSITION PRODUCTS:	Thermal decomposition in the presence of air may yield carbon monoxide and/or carbon dioxide and water.
HAZARDOUS POLYMERIZATION:	Does not occur
CONDITIONS TO AVOID:	N/A
CORROSIVE TO METAL:	No
OXIDIZER:	No

SECTION XI – TOXICOLOGICAL INFORMATION

EFFECTS OF OVEREXPOSURE

INHALATION:	Vapor from stored, undiluted product can cause headache and nausea.
SKIN:	Stored, undiluted product is slightly irritating to skin.
EYES:	Slightly irritating to eyes.
INGESTION:	May be irritating to digestive tract.

	OSHA		ACGIH	
NAME	**TWA**	**STEL**	**TWA**	**STEL**
Acrylic & polyvinyl Acetate Polymer	None	None	None	None
Water	None	None		None

SECTION XII – ECOLOGICAL INFORMATION

Animal toxicity studies on blended SOIL-SEMENT® have not been carried out because we believe the fish toxicity studies done on the blend demonstrate it is as non-toxic as the individual emulsions which go into the blend. TABLE #1 gives the results of our fish toxicity tests.

In summary, these data show that the LC_{50} of SOIL-SEMENT® on goldfish is somewhere above 12,500 ppm. This is extremely low toxicity, especially in view of the legal requirement that chemicals must be labeled "toxic to fish" only if their LC_{50} is less than 1.0 ppm.

TABLE I

FISH TOXICITY STUDIES

EMULSION NUMBER	TYPE OF FISH	HOURS	LC_{50} PPM
C	Rainbow Trout	24	10,000
C	Rainbow Trout	96	8,950
C	Bluegill Sunfish	24	10,000
C	Bluegill Sunfish	96	5,640
C	Goldfish	24	4,200
H	Goldfish	24	7,500
G	Goldfish	24	10,000
D	Goldfish	24	13,400
F	Goldfish	24	13,400
SOIL-SEMENT®	Goldfish	24	12.500 - 25,000
SOIL-SEMENT®	Goldfish	48	12,500 - 25,000
SOIL-SEMENT®	Goldfish	72	12,500 - 20,000
B	Goldfish	24	24,000
E	Goldfish	24	24,000

The 48 hour LC_{50} for Daphnia Magna based on nominal test concentrations and mortality at the end of testing was calculated to be 3,482.8 parts per million (ppm).

SECTION XIII – DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD:

Coagulate the emulsion by the stepwise addition of ferric chloride and lime or the addition of sand or other absorbent material. Remove the clear supernatant liquid and flush to a chemical sewer or landfill. Incinerate solids and the contaminated diking material according to local, state and federal regulations.

CONTAINER DISPOSAL:

Do not re-use containers. Do not weld on metal containers.

SECTION XIV – TRANSPORTATION INFORMATION

D.O.T. PROPER SHIPPING NAME (49CFR172.101):	None
HAZARDOUS SUBSTANCE (40CFR116):	N/A
REPORTABLE QUANTITY (RQ):	N/A
D.O.T. HAZARD CLASSIFICATION (49CFR172.101):	Non-regulated
D.O.T. PLACARDS REQUIRED:	None
POISON CONSTITUENT (49CFR173.343):	N/A
BILL OF LADING DESCRIPTION:	Liquid plastic, NOS
C NO.:	N/A
UN/NA CODE:	N/A

SECTION XV – REGULATORY INFORMATION

SOIL-SEMENT® is not a restricted article according to the Department of Transportation and International Air Transport Association regulations.

EPA SARA Title III hazard class:	None
OSHA HCS hazard class:	Non-OSHA hazardous (29CFR1910.1200)
EPA SARA Title III Section 313 (40CFR372)	
Toxic Chemicals present in quantities greater than the "de minimus" level are:	None

This product is not a "controlled product" under the Canadian Workplace Hazardous Material Information System (WHMIS)

SECTION XVI – OTHER INFORMATION

ABBREVIATIONS AND SYMBOLS:

N.D. - Not Determined	N.A. - Not Applicable	N.T. - Not Tested
< - LESS THAN	> MORE THAN	

CCIG/OBOT/TLS RESPONSE TO CITY 9/28/15 QUESTION #15

15) With respect to water usage during operations:

a. When, how and where will water be used to control dust?

All water used for dust control at the TLS terminal will be recycled water and will be utilized consistent with the Federal Clean Water Act, Porter-Cologne Water Quality Control Act, and all Regional Water Quality Control Board regulations including an NPDES waste water and storm water permit, if required.

TLS will operate a multi-commodity bulk terminal where dust control measures and related recycled water usage will vary depending the properties of the commodity. Certain commodities are anhydrous and must remain dry throughout the handling process, whereas other commodities can have recycled water applied as a dust control measure without inducing a reaction. Recognizing that TLS does not currently have any specific commodities under contract, dust emissions at the TLS terminal will be controlled in a number of ways including:

1. Prevention
    a. The drop height of material that is transferred from railcars to conveyors to storage to shiploading will be reduced to the maximum extent possible to prevent dust.
    b. Controlled flow transfer chutes will be used to gently slide the material from one belt to another to prevent dust

2. Passive Emission Control (PEC) that prevent fugitive dust from escaping
    a. All material handling systems will be enclosed to the maximum extent possible.
    b. Commodities at the TLS facility will be stored in fully enclosed buildings or domes.

3. Dust suppression.
    a. For non-anhydrous commodities, a "dry fog" dust suppression system will be installed before and after each commodity transfer point including the railcar unloading station, conveyor system, and shiploader. Dry fog dust suppression uses an agglomeration technique that can provide up to 99% dust suppression efficiency while adding less than 0.1% moisture to the process using only compressed air and recycled water. Dry fog dust suppression systems make the most efficient use of water and consume a fraction of the water used in conventional dust suppression systems. Unlike water spray or misting systems, ultrasonic nozzles create fog droplets below 10um that most closely match and most effectively agglomerate with PM2.5 and PM10 dust particles. This is accomplished using compressed air to forcefully push air and water into a convergent divergent venturi. This reduces the surface tension of the water droplets, while

increasing the number of droplets in a given area and eliminating the need for the addition of surfactants or other additives. This is the driest form of dust suppression available. The fog systems will be linked to the plant control system via a programmable logic controller (PLC) that communicates in auto mode to avoid running when material is not present to conserve water. Water for the dry fog system will come from recycled water available at the site from the EBMUD facility next door. Should coal products move through the TLS facility, the EPA has specified fogging systems as Best Demonstrated Technology (BDT) for sub-bituminous coal, which is much dustier than the bituminous coal.

4. Dust collection.
    a. For anhydrous material that reacts with water and must therefore remain dry throughout the handling process, a dry dust "bag house" collection system will be installed at each dry material transfer point to prevent fugitive dust. Bag House Dust Collectors with latest state-of-the-art design can provide up to 99.99% efficiency.

5. Properly trained operating personnel.
    a. Training will include principals of clean safe working practices, incorporating measures delineated in the TLS Draft Operating Plan submitted to the City on September 8, 2015.

6. Good housekeeping practices.
    a. An industrial vacuum system will be provided to facilitate clean up in the event of any material spillage.

A report produced by Cardno describes the industry best practices for the design and operations of dry bulk loading terminals, and as a means to illustrate the respective types of dust control measures for products with differing properties, coal and soda ash are referenced as two sample commodities evaluated. (See Exhibit 15-A).

b. How much water is expected to be needed and what water source will be used?

Recycled water usage is estimated to be less than 2.0 million gallons per year for the "dry fog" dust suppression system that will be installed for the non-anhydrous commodity handling.

The "dry fog" system is the most efficient dust suppression system and consumes much less water than other dust suppression systems (See Exhibit 15-A, Figure 21). The fog systems will be linked to the plant control system via a programmable logic controller (PLC) that communicates in auto mode to avoid running when material is not present to conserve water.

Dry fog dust suppression uses an agglomeration technique that can provide up to 99% dust suppression efficiency while adding less than 0.1% moisture to the process using only compressed air and recycled water. Unlike other water spray or misting systems, ultrasonic nozzles create fog droplets below 10um that most closely match and most effectively agglomerate with PM2.5 and PM10 dust particles. This is accomplished using compressed air to forcefully push air and recycled water into a convergent divergent venturi. This reduces the surface tension of the recycled water droplets, while increasing the number of droplets in a given area and eliminating the need for the addition of surfactants or other additives. This is the driest form of dust suppression available.

Recycled water used in the "dry fog" dust suppression system will come from the EBMUD facility adjacent to the project. The estimated 2.0 million gallons per year is a slight amount when compared to the 2.96 billion gallons per year that is currently distributed by EBMUD, and will become insignificant as EBMUD continues to increase its capacity to deliver recycled water. The actual recycled water consumption at the TLS terminal will be based on the size of the material handling equipment and its operating capacity; i.e., metric tons/hour. This volume of water shall be confirmed once the material handling designs are finalized.

c. **Will water be recycled?**
Yes. As noted above, all water used for dust control at the TLS terminal will be recycled water, and its use will be consistent with the Federal Clean Water Act, Porter-Cologne Water Quality Control Act, and all Regional Water Quality Control Board regulations including an NPDES waste water and storm water permit, if required.

EXHIBIT 15-A

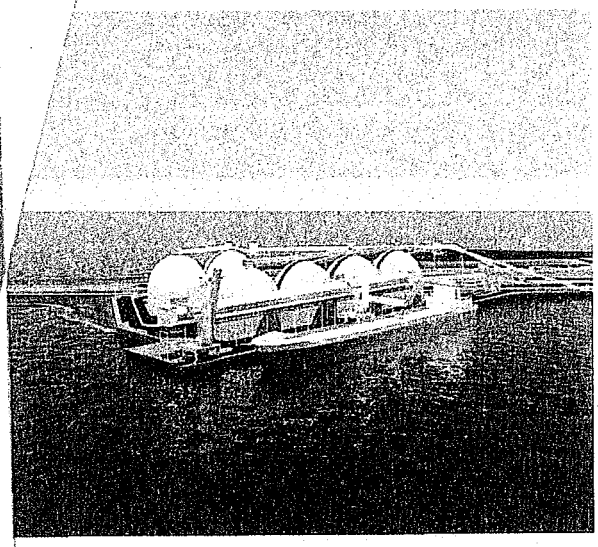
Cardno Best Measure Practices for the Design of Multi-Commodity Loading Terminals

Best Practices for the Design of Multi-Commodity Loading Terminals

Oakland Bulk and Oversized Terminal

October 2015 - Final

Project No. 090448



Cardno

Shaping the Future

Document Information

Prepared for:	Terminal Logistics Solutions
Project Name:	Oakland Bulk and Oversized Terminal
Project Number:	090448
Project Manager:	Marcel Veilleux
Date:	October 04, 2015

Prepared for:

Terminal Logistics Solutions, LLC

300 Frank H. Ogawa Plaza, Suite 430, Oakland, CA 94612

Prepared by:

Cardno - GS
2275 West Street, Suite 110, Annapolis, MD 21401

Table of Contents

Executive Summary I
Introduction I
Facility Overview I
Control Measures I
Water Consumption II
1 Introduction 1
2 Facility Overview 1
2.1 Railcar Unloading – Coal (Sample Commodity) 2
2.2 Railcar Unloading – Soda Ash (Sample Commodity) 3
2.3 Dust Control at Railcar Unloading Stations 3
2.4 Dust Control at Conveyor Belts and Transfers 4
2.5 Material Storage 5
2.6 Shiploading 7
3 Dry Fog Dust Suppression Water Consumption 8

Figures

Figure 1: Typical coal rapid discharge bottom dump hopper railcar 2
Figure 2: Typical Cross-Section through Dumper 2
Figure 3: Typical Opening at Ends of Dumper Building 2
Figure 4: Typical Cross-Section through Dumper 2
Figure 5: Typical Soda Ash Bottom Dump Covered Hopper Railcar 3
Figure 6: Dry Fog System Operating in Dumper Building 3
Figure 7: Schematic of "Bag House" Dry Dust Collection System 3
Figure 8: Schematic of Dry Dust Collection System 3
Figure 9: View of Dust Collector Hoods Inside Dumper Building 4
Figure 10: View of Bottom Dumper with Dust Collection 4
Figure 11: Engineered Flow Chute that directs and confines the stream of moving material 4
Figure 12: View of Completely Enclosed Conveyor with Walkways 4
Figure 13: Receiving Belt of Conveyor with Fog Exiting the Conveyor Skirtboard Suppressing Dust Before it Leaves the Conveyor Cover 5
Figure 14: Typical Transfer Point System Showing Location of dry fog application 5
Figure 15: Example of location of fog sprays on the exit side of a conveyor transfer point 5
Figure 16: Dry dust collector at transfer station 5
Figure 17: Thin shell wall of reinforced concrete dome 6
Figure 18: Telescoping Chute Inside a Typical Warhouse 6
Figure 19: View of Telescopic Chute at Shiploader 7
Figure 20: View of Telescopic Chute with Dry Fog System Operating while Loading a Ship 7

Acronyms

BACM	Best Available Control Measures
BDT	Best Demonstrated Technology
EBMUD	East Bay Municipal Utility District
e.g.	for example
EPA	Environmental Protection Agency
i.e.	that is
mgd	Million Gallons per day
mph	Miles per Hour
Mtpy	Million tons of bulk commodities per year
OBOT	Oakland Bulk and Oversized Terminal
PEC	Passive Emission Control
PLC	Programmable Logic Controller
SCAQMD	South Coast Air Quality Management District

Executive Summary

Introduction

The purpose of this document is to present and describe the industry best practices for the design and operations of dry bulk loading terminals. Although the project sponsors have not selected specific commodities, by way of example, control of dust emissions that could result from the handling of coal and soda ash have been evaluated.

The project sponsors are committed to incorporating into the design, construction and operation of the facility state-of-the-art controls and best operating practices that meet or exceed Best Available Control Measures (BACM) as defined by the South Coast Air Quality Management District (SCAQMD) Rule 1158 and Best Demonstrated Technology (BDT) as defined by the Environmental Protection Agency (EPA) to ensure that all potential dust emissions that may occur during the handling of commodities are negligible.

Facility Overview

The proposed Oakland Bulk and Oversized Terminal (OBOT) will be a multi-product dry bulk terminal that will:

1. Receive product by rail,
2. Store the product inside fully enclosed structures, and
3. Load ocean going vessels.

The facility intends to handle about 6.5 Million tons of bulk commodity products per year (Mtpy). The OBOT multi-commodity loading terminal will be designed, constructed and operated in strict accordance with the South Coast Air Quality Management District (SCAQMD) Rule 1158 restrictions. Railcars will be covered at the commodity's origin to prevent emissions of dust that could otherwise occur early in the train trips.

Control Measures

Dust emissions at the terminal will be controlled in a number of ways including:

a. Prevention
b. Passive Emission Control (PEC)
c. Dust suppression
d. Dust collection
e. Properly trained operating personnel
f. Good housekeeping practices

The entire material handling system will be enclosed to the maximum extent possible. Conveyors from the train dump to the shiploader will be fully enclosed. The material will be stored in completely enclosed buildings or domes.

For non-anhydrous commodities, like coal, dust that may occur during operations at the enclosed railcar dump station, enclosed conveyor transfers, and shiploader will be controlled by a 'Dry Fog" type dust suppression system. Dry fog dust suppression uses an agglomeration technique that can provide up to 99% dust suppression efficiency while adding less than 0.1% moisture to the process using only

compressed air and water. Dry fog dust suppression systems make the most efficient use of water and consume a fraction of the water used in conventional dust suppression systems. The EPA now specifies fogging systems as Best Demonstrated Technology (BDT) for sub-bituminous coal, which is much dustier than the bituminous coal that will be handled at the facility.

For anhydrous commodities, like soda ash, dust that may occur during operations at the enclosed railcar dump station, enclosed conveyor transfers, and shiploader will be controlled by a dry "bag house" type dust collection system. Bag house dust collectors with the latest state-of-the-art designs provide 99.99% control efficiency. Fugitive dust is captured by filters installed inside the dust collector.

Water Consumption

Water for the dry fog system will come from recycled non-potable water available at the site from the East Bay Municipal Utility District (EBMUD) facility next door.

Dry fog type dust suppression is the driest and most efficient form of dust suppression available. The EPA now specifies fogging systems as Best Demonstrated Technology (BDT) for sub-bituminous coal, which is much dustier than the bituminous coal that will be handled at the facility.

The fog systems will be linked to the plant control system via a programmable logic controller (PLC) that communicates in auto mode to avoid running when material is not present. Water consumption is estimated to be less than 2.0 million gallons per year, which is a slight amount when compared to the 2.96 billion gallons per year that is currently distributed by EBMUD and will become insignificant as EBMUD continues to increase its capacity to deliver recycled water.

1 Introduction

The purpose of this document is to present and describe what are considered best practices for the design of dry bulk loading terminals, and as a means to illustrate the respective types of dust control measures for products with differing properties, coal and soda ash are referenced as two sample commodities evaluated.

2 Facility Overview

The proposed Oakland Bulk and Oversized Terminal (OBOT) will be a multi-product dry bulk terminal that will:

1. Receive product by rail,
2. Store the product inside fully enclosed structures, and
3. Load ocean going vessels.

The facility intends to handle about 6.5 Million tons of bulk commodity products per year (Mtpy). The project sponsors are committed to incorporating industry Best Demonstrated Technology (BDT), state-of-the-art controls and best operating practices to ensure that all potential dust emissions that may occur during the handling and storage of commodities are negligible.

Dust emissions at the terminal will be controlled in a number of ways including:

a. Prevention
   i. The drop height of material that is transferred from railcars to conveyors to storage to shiploading will be reduced to the maximum extent possible to prevent dust.
   ii. Controlled flow transfer chutes will be used to gently slide the material from one belt to another to prevent dust
b. Passive Emission Control (PEC) that prevent fugitive dust from escaping
   i. All material handling systems will be enclosed to the maximum extent possible
   ii. Commodities will be stored in fully enclosed buildings or domes
c. Dust suppression.
   i. For non-anhydrous commodities, like Coal, a "dry fog" dust suppression system will be installed before and after each transfer point. Dry fog dust suppression uses an agglomeration technique that can provide up to 99% dust suppression efficiency while adding less than 0.1% moisture to the process using only compressed air and water. Dry fog dust suppression systems make the most efficient use of water and consume a fraction of the water used in conventional dust suppression systems. Unlike water spray or misting systems, ultrasonic nozzles create fog droplets below 10um that most closely match and most effectively agglomerate with PM2.5 and PM10 dust particles. This is accomplished using compressed air to forcefully push air and water into a convergent divergent venturi. This reduces the surface tension of the water droplets, while increasing the number of droplets in a given area and eliminating the need for the addition of surfactants or other additives. This is the driest form of dust suppression available. The fog systems will be linked to the plant control system via a programmable logic controller (PLC) that communicates in auto mode to avoid running when material is not present to conserve water. Water for the dry fog system will come from recycled water available at the site from the EBMUD facility next door. The EPA now specifies fogging systems as Best Demonstrated Technology (BDT) for sub-bituminous coal, which is much dustier than the bituminous coal that will be handled at the facility.

d. Dust collection.

   i. For anhydrous material, like Soda Ash, that reacts with water and must therefore remain dry throughout the handling process. A dry dust "bag house" collection system will be installed at each soda ash transfer point to prevent fugitive dust. Bag House Dust Collectors with latest state-of-the-art design can provide up to 99.99% efficiency.

e. Properly trained operating personnel.

   i. Training will include principals of clean safe working practices.

f. Good housekeeping practices.

   i. An industrial vacuum system will be provided to facilitate clean up in the event of any material spillage.

2.1 Railcar Unloading – Coal (Sample Commodity)

To illustrate railcar unloading procedures, Coal and Soda Ash are two sample commodities evaluated in this report.

Coal, as a sample commodity, will arrive in bottom dump hopper type railcars cars. Railcar bottom dumping will be fully automated. Onboard compressed air is used to open and close the discharge gates. The gates are activated using a large button located on the side of each car. The bottom dump trains will unload while moving - usually around 2 to 3 mph. The railcars will be covered at the mine to prevent emissions of dust that could otherwise occur early in the train trips.

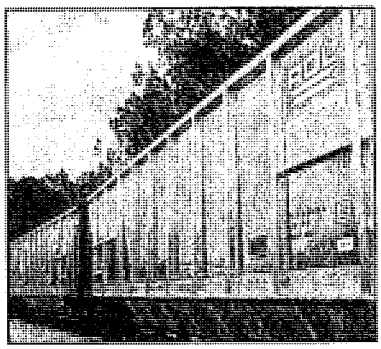


Figure 1: Typical coal rapid discharge bottom dump hopper railcar
Courtesy of: TrinityRail Inc.

Figure 1 is a photo of a typical rapid discharge bottom dump railcar. Cross-sections of a typical dumper are provided in Figures 2 and 4. The railcar unloading building will be enclosed and designed with openings at both ends that are sized to the rail cars and are largely occupied by the bodies of the rail cars as shown in Figure 3.

One of the advantages that a bottom dumper offers is that the drop height of material falling from the railcar to the dumper hoppers is reduced when compared to a rotary tippler. The rotary tippler creates a large displacement of air as the material hits the hoppers below causing the dust to rise with the air flow out of the hoppers. The lower the drop height, the lower the amount of dust generated. When strings of railcars are being unloaded, the openings at the ends of the dumper building are taken up mostly by the railcar itself, which reduces the airflow through the building, thus reducing the potential for wind-blown dust through the dumper. Rubber curtains will be installed to minimize openings that cannot be practically enclosed by the building siding. While the rotary wagon tippler creates more dust than a bottom dumper; both involve the same design concept when it comes to dust control.

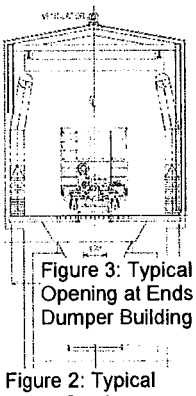


Figure 2: Typical Cross-Section through Dumper

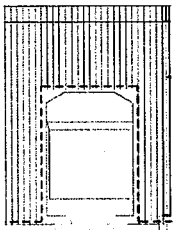


Figure 3: Typical Opening at Ends of Dumper Building

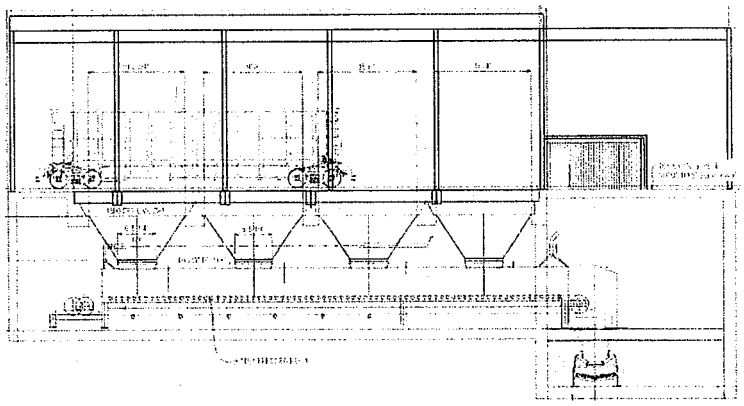


Figure 4: Typical Cross-Section through Dumper

2.2 Railcar Unloading – Soda Ash (Sample Commodity)

Soda Ash, as a sample commodity, will arrive in bottom dump covered hopper type railcars similar to Figure 5. The sample soda ash dumper building and cross-sections will be similar to the sample coal dumper building.

2.3 Dust Control at Railcar Unloading Stations

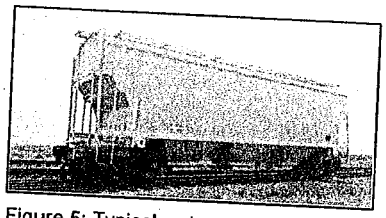


Figure 5: Typical soda ash bottom dump Covered hopper railcar

Courtesy of: TrinityRail Inc.

Dust control systems will be installed at both commodity railcar dump stations.

In addition to enclosing the building to the maximum extent possible, a dry fog system will be installed at the coal (sample commodity) dumper. Figure 6 is a photo of a dry fog system operating at a bottom dumper. The fog (not spray, not mist) will prevent fugitive dust from escaping the building. Dust generated from the dumping process will agglomerate to the water fog particles and then settle back into the hoppers. Dry fog nozzles will be located at each side of the track and spray to the center of the track. The systems will be programmed so that only the dry fog sprays at the relevant unloading points are operated and the system sprays will operate such that the spray moves with the train until the unloading process is complete.

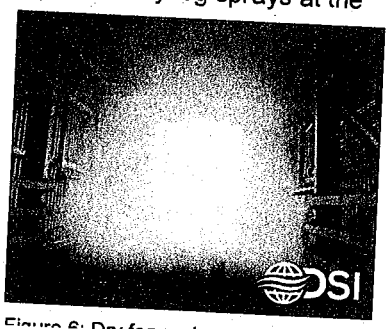


Figure 6: Dry fog system operating in

Courtesy of: Dust Solutions, Inc.

A dry "bag house" collection system will be installed at the soda ash (sample commodity) dumper. Bag house dust collectors with the latest state-of-the-art designs provide 99.99% control efficiency. Each dust control system is unique to the application. The dust collection system includes pickup hoods, ducting, branch lines, dust collector, fan, and a dust return system as shown in Figure 8. Dust collection hood design and placement is key to providing an efficient dust collection system. Fugitive dust is captured by filters installed inside the dust collector as shown in Figure 7.

The proposed control measures for the handling of sample commodities, coal and soda ash, will result in minimal visible emissions during the dumping cycle and no visible emissions from the dumper building. For the case of soda ash (sample commodity), there will be no visible emissions from the collection system exhaust. The control systems will have maximum system availability to operate in conjunction with car dumper.

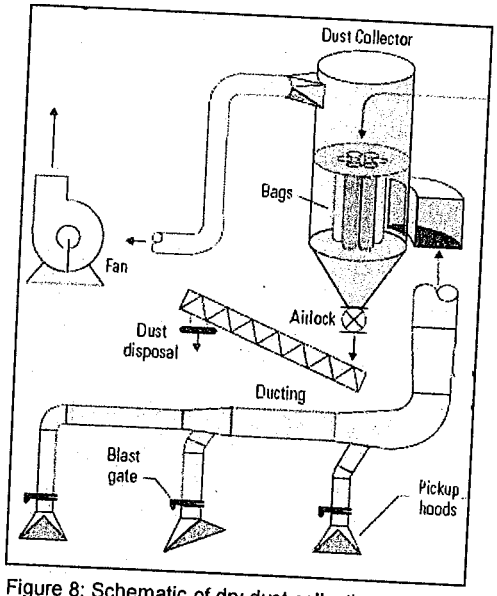


Figure 8: Schematic of dry dust collection system

Courtesy of: Air-Cure Inc

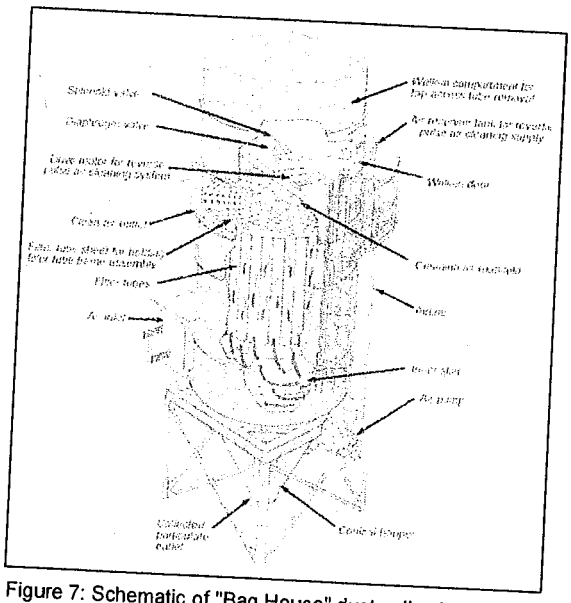


Figure 7: Schematic of "Bag House" dust collection system

Figure 10 is a photo of a bottom dump station utilizing dry dust collection. Figure 9 shows the placement of the hoods inside a bottom dump building.

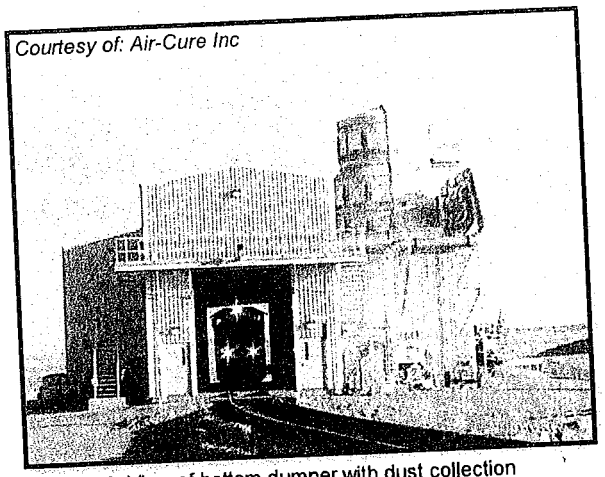


Figure 10: View of bottom dumper with dust collection

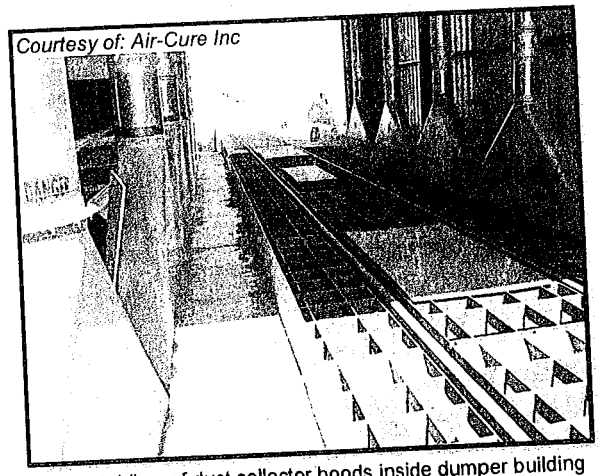


Figure 9: View of dust collector hoods inside dumper building

2.4 Dust Control at Conveyor Belts and Transfers

Dust will be controlled throughout the conveying system by:

> State-of-the-art design that reduces the generation of dust

> Passive Emission Control (PEC) that prevent fugitive dust from escaping

> Either a "dry fog" dust suppression system or a dry dust collection system; depending on the product being handled.

The first consideration in dust control at material handling systems is to minimize the amount of airborne dust created. The state-of-the-art to passive dust control is the use of flow control chutes. These chutes typically incorporate a "hood and spoon" design that directs and confines the stream of moving material. See Figure 11. Engineered "hood and spoon" flow control chutes keep the material stream in a tight profile and minimizes the disruption of the natural flow of material through the transfer. Keeping the material in a consolidated body reduces the amount of air that is induced into the transfer point. Controlling the path of the material reduces impact and, therefore, dust generation. The material is deposited more-or-less gently on the belt with minimal tumbling or turbulence of material on the belt. The chutes are fully enclosed and are secondarily contained inside a fully enclosed transfer tower. This combination of gentle slide chute plus primary and secondary dust enclosures is a vast improvement over the old design of "dumping" from one belt to another. By this new system, the inherent dust in the coal (sample commodity) is not allowed to be entrained.

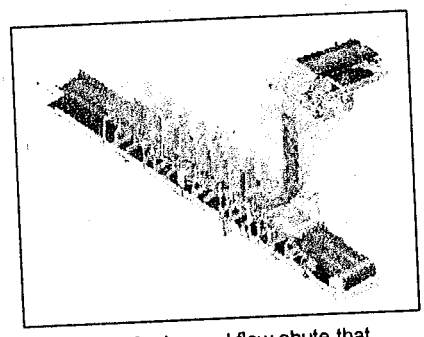


Figure 11: Engineered flow chute that directs and material
Courtesy of: Martin Engineering

All conveyors will be fully enclosed (See Figure 12). Any fugitive dust or accidental spillage will be fully contained within the conveyor structure. Dust curtains will also be installed to form a barrier to prevent air intake around d the conveyor belt as it enters the transfer system and close to the end of the chute work.

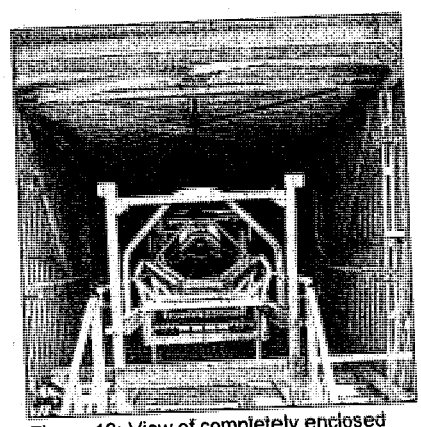


Figure 12: View of completely enclosed conveyor with walkways

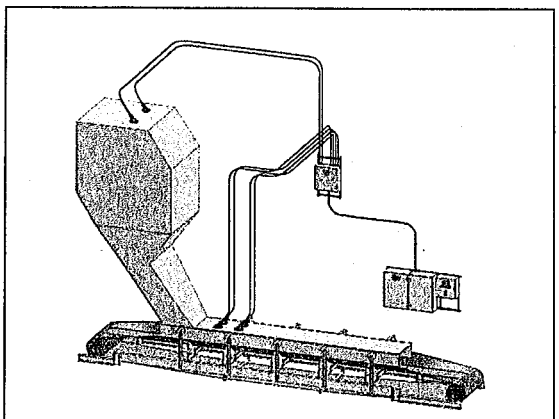


Figure 14: Typical transfer point system showing location of dry fog applicatic *Courtesy of: Dust Solutions, Inc.*

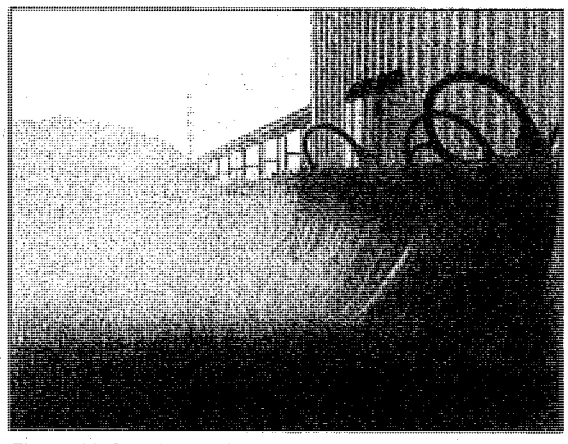


Figure 13: Receiving belt with fog exiting skirtboard - suppressing dust before it leaves the conveyor cover

A "dry fog" dust suppression system will also be used to control dust at the coal (sample commodity) material handling conveyors. Dry fog sprays will be installed before and after every conveyor transfer point. The dry fog spray will be generated and contained in well-designed shrouding to eliminate dissipation due to wind and also ensures the treatment time necessary to suppress and control airborne dust.

The fog treated dust then moves along to the next transfer (that is also primarily and secondarily enclosed, and is treated with fog), into the storage structures (that are also fogged), and eventually into the shiploader where it is also fogged. A schematic of a typical transfer and location of fog application is shown in Figure 14. Figure 13 shows the receiving belt of a conveyor with fog exiting the conveyor. Figure 15 shows the locations of fog sprays on the exit side of a transfer.

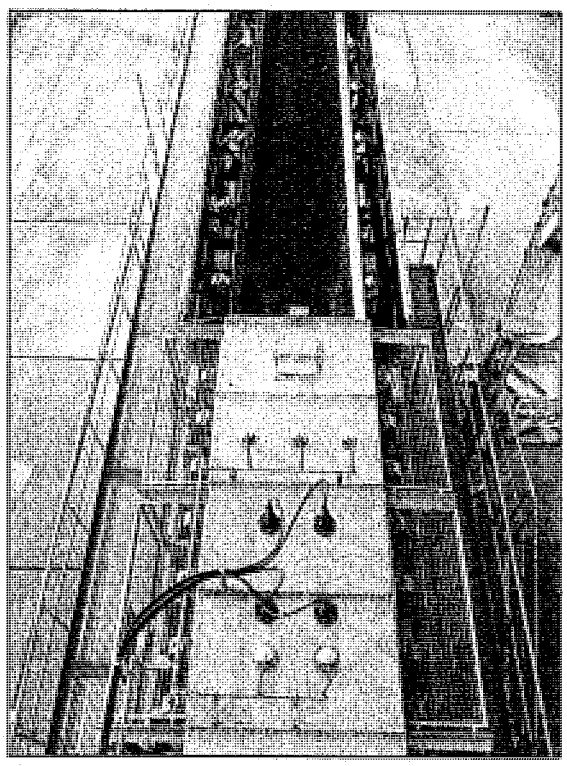


Figure 15: Example of location of fog sprays on the exit side of a conveyor transfer point

The soda ash (sample commodity) conveyor system will also have a dry "bag house" dust collection system in addition to the passive emission controls that will be designed into the material handling system. Dust control systems located at each transfer points will contain and capture dust from the movement of the product and keep it from escaping to the atmosphere. See Figure 16 for photo of dust collector at a conveyor transfer tower.

The dust collection system will operate automatically and will be interlocked with the conveyor system such that the conveyor system cannot operate if the dust collector is not operational.

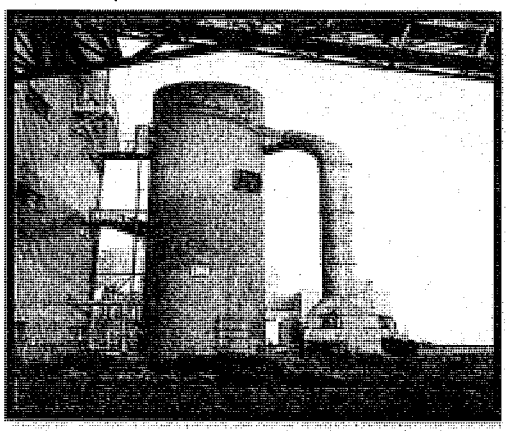


Figure 16: Dry dust collector at transfer station
Courtesy of: Air-Cure Inc

2.5 Material Storage

All dry bulk material will be stored inside completely enclosed buildings or domes.

Reinforced concrete domes are the strongest most durable bulk storage structures available. They maintain structural integrity in extreme heat and fire conditions and are designed to provide superior explosion containment.

Construction of reinforced concrete domes begins with the construction of a reinforced concrete foundation, or "ring beam". Conveyor tunnels are then integrated into the dome's foundation. A fabric form, or *air form*, is then attached to the foundation and inflated with air. A layer of polyurethane foam is then sprayed on the interior of the form and rebar is attached to the outside layer of the foam. Several inches of concrete are then sprayed over the rebar frame (See Figure 17).

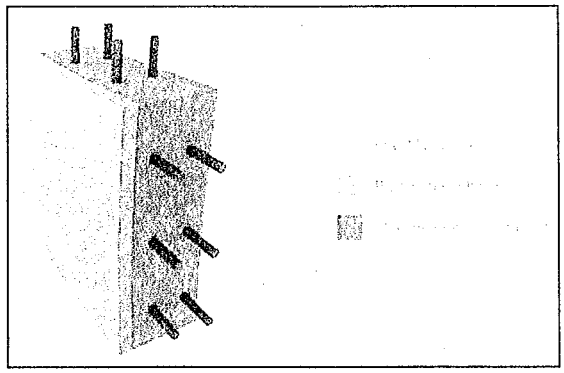
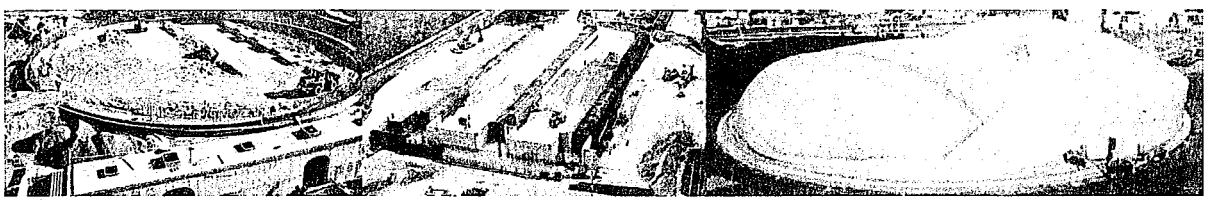
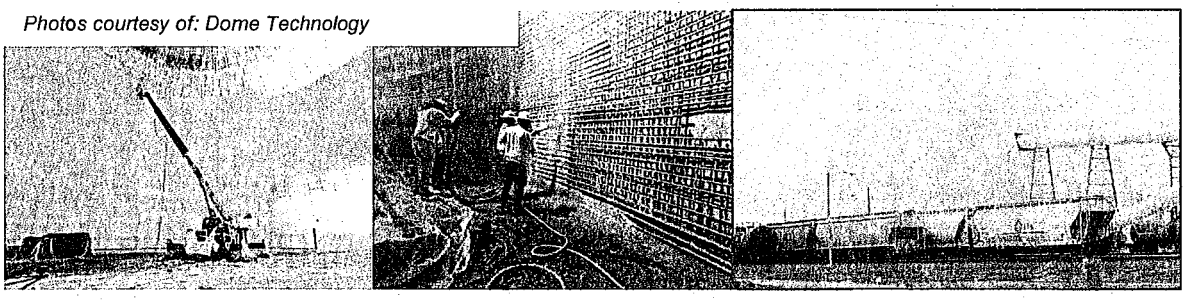


Figure 17: Thin shell wall of reinforced concrete dome
Courtesy of: Dome Technology



Construct Ring Beam | Construct Conveyor Tunnels | Inflate Air Form

Photos courtesy of: Dome Technology



Installation of Polyurethane Foam | Spray Concrete over Rebar Frame | Completed Dome

Coal, as a sample commodity, can be stored in either a dome or warehouse. Warehouses can be constructed in various shapes and materials depending on the area available for construction and the product to be handled. The common feature of most dry bulk storage warehouses is that the material is enters the building at the ridge line and is deposited to the floor by way of a telescoping chute to reduce the drop height and therefore reduce dust generation (See Figure 18). The inside of warehouses ate typically under negative pressure such that air is drawn into the building when doors are opened to prevent any material or dust from escaping the building. Building ventilation ports are equipped with dust filters

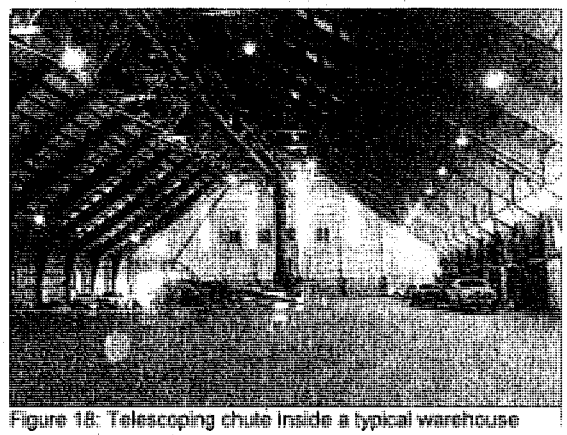


Figure 18: Telescoping chute inside a typical warehouse

to collect dust particles that may be entrained by the air flow as it exits the vents.

2.6 Shiploading

There are many types of shiploading systems that can be used for loading either coal or soda ash, as sample commodities. What they all have in common is a conveyor boom and telescopic chute to load ships (See Figure 19). When a ship is empty, the telescopic chute will be lowered to the bottom of the ship's hold to prevent dust that can be generated from simply dumping the material from top to bottom. The telescopic chute will also have a ring beam with a dry fog dust suppression system for when coal (sample commodity) is handled (See Figure 20). A dry bag house type dust collection system will be used when soda ash (sample commodity) is being loaded.

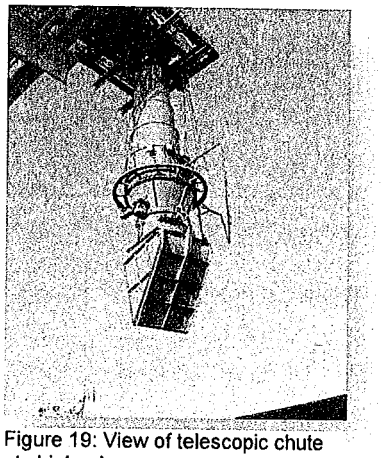


Figure 19: View of telescopic chute at ship! *Courtesy of: Dust Solutions, Inc.*

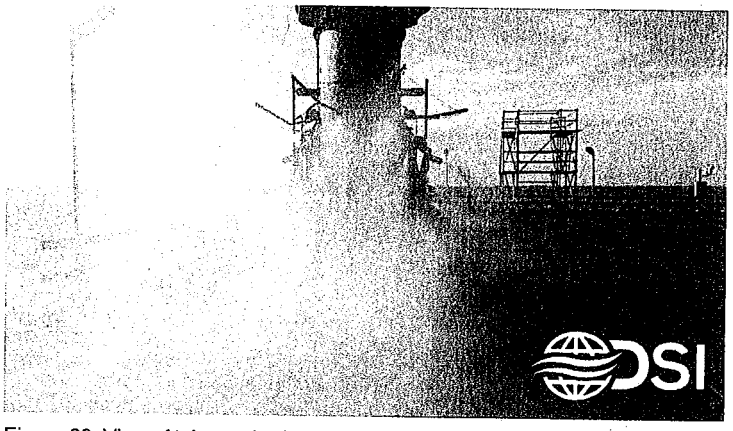


Figure 20: View of telescopic chute with dry fog system operating while loading ship

3 Dry Fog Dust Suppression Water Consumption

The "dry fog" dust suppression system that will be installed for the non-anhydrous commodity handling system is the most efficient dust suppression system and consumes much less water than other dust suppression systems (See Figure 21).

The fog systems will be linked to the plant control system via a programmable logic controller (PLC) that communicates in auto mode to avoid running when material is not present to make sure that the minimum amount of water will be used.

Furthermore, water for the dry fog system will come from non-potable recycled water available from the East Bay Municipal Utility District (EBMUD) facility that is located next door to the proposed terminal.

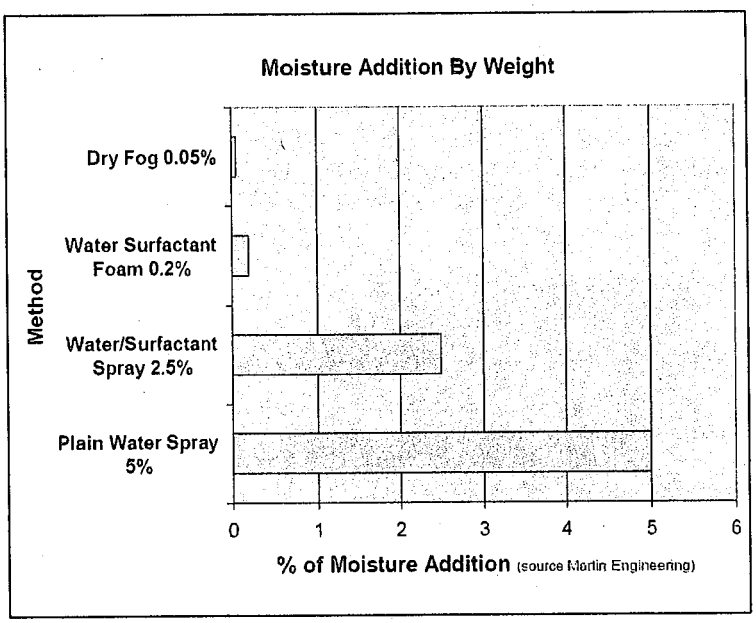


Figure 21: Moisture addition by weight for various dust suppression systems

Dry fog dust suppression uses an agglomeration technique that can provide up to 99% dust suppression efficiency while adding less than 0.1% moisture to the process using only compressed air and water. The actual amount of water that will be used depends on a number of factors that are mostly associated with the size of the material handling system and the number of transfer points; i.e., the number of times that the material is dropped from one piece of equipment to another as it moves along the line to its final point of rest.

The goal of a dry fog system is not to add moisture to the material. The goal is to create an environment where tiny dust particles will attach to tiny water particles and settle back to where it came from; i.e., the conveyor belt train dump hopper or ship's hold depending on the location. Unlike water spray or misting systems, ultrasonic nozzles create fog droplets below 10um that most closely match and most effectively agglomerate with PM2.5 and PM10 dust particles. This is accomplished using compressed air to forcefully push air and water into a convergent divergent venturi. This reduces the surface tension of the water droplets, while increasing the number of droplets in a given area and eliminating the need for the addition of surfactants or other additives. This is the driest form of dust suppression available.

In the evaluation of coal, as a sample commodity, the EPA now specifies fogging systems as Best Demonstrated Technology (BDT) for sub-bituminous coal, which is much dustier than the bituminous coal that would be handled at the facility.

Water consumption for the dry fog system is conservatively estimated to be less than 2.0 million US gallons per year.[1] The water consumption will be based on the final size of the material handling equipment and its operating capacity. This volume of water shall be confirmed once the material handling designs are finalized.

As can be seen in Figure 21, plain water spray can require as much as 5% moisture by weight to be effective. The actual amount will vary depending on the water content of the coal when it arrives at the site with 5% generally accepted as the maximum amount. As an example of the amount of water such as a system can consume,

[1] Note: The amount of water was calculated based on the number of spray nozzles required and the length of time that they will operate for the material handling system developed during preliminary engineering. The calculation resulted in 1,720,000 US gallons per year and 280,000 US gallons per year (± 16%) was added to the total as a contingency to account for any design changes that may occur during the final design period. We believe this to be a conservative number.

adding 5% moisture to 5,000,000 tons of coal is equivalent to adding 250,000 tons of water of 66.0 million US gallons per year.

EBMUD's customers in Fiscal Year 2014 used almost 8.1 million gallons per day of recycled water. This is equivalent to 2.96 billion gallons per year. The terminal's water consumption would represent only 0.07%, i.e., $\frac{7}{10,000}$ of EBMUD's 2014 totals. EBMUD's 2040 goal is to recycle a total of 20 mqd of water, bringing the total recycled water use to nearly 7.3 billion gallons annually – almost 2.5 times more than the current totals. The amount of recycled, non-potable water that will be consumed by the terminal is slight when compared to the amount currently distributed by EDMUD and will become insignificant as EBMUD continues to increase its capacity to deliver recycled water.

4 References

Blythe, D. Sealpump Engineering Limited, A Practical Guide to Dust Suppression : See more at: http://www.sealpump.com

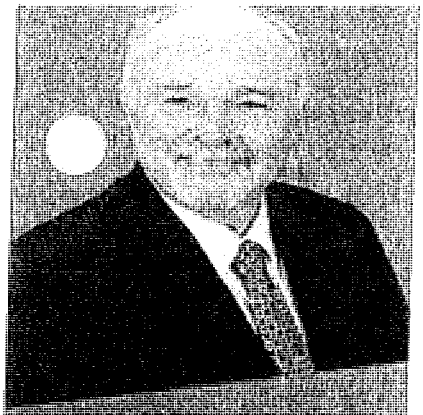
Environmental Protection Agency, 2009. 40 CFR Part 60 Standards of Performance for Coal Preparation and Processing Plants; Final Rule

Posner, R., Poulsen, A. 2015. Using Agglomerative Dust Suppression and Wind Breaks for Fugitive Dust Abatement: Power-Gen Asia

South Coast Air Quality Management District (SCAQMD) Rule 1158 - Storage, Handling, and Transport of Coke, Coal, and Sulfur. 2008. See more at: http://www.aqmd.gov

Spraying Systems Company, A Guide to Spray Technology for Dust Control. See more at: http://www.spray.com

Swinderman, R.T., Marti, A.D., Goldbeck, L.J., Marshall, D., Strebel, M.G. Martin Engineering Company. 2009. Foundations™, the Practical Resource for Cleaner, Safer, More Productive Dust & Material Control. - See more at: https://www.martin-eng.com/page/foundations-book



Cardno
Shaping the Future

Marcel Veilleux

Current Position
[illegible]

Profession
Senior Port Planner

Years Experience
[illegible]

Joined Cardno TEC
[illegible]

Education
BS [illegible]

www.cardno.com

Summary of Experience

Mr. Veilleux has over 30 years of experience in the planning, engineering, design, construction, and start-up of port facilities and their related rail and cargo handling systems. His experience includes program management of both large and small port and cargo handling projects from planning and engineering through construction. His projects have included container, dry bulk, `general cargo, liquid bulk, and multi-product terminals. Many of his projects have involved analyzing transportation logistics, and simulating the effect on port operations such as throughput capacity, berth occupancies, demurrage, etc., that result from projected cargo forecasts, vessel fleet size and distribution. He has been directly responsible in negotiating concession agreements for new port cargo handling terminals. He has managed a number of multi-national design teams and has worked in Australia, Benin, Burkina Faso, Cape Verde, Chile, Croatia, Dominica, Egypt, Gabon, Guinea (Conakry), Haiti, India, Ivory Coast, Kuwait, Malaysia, Mali, Mauritania, Morocco, Mozambique, São Tomé e Príncipe, Senegal, Tanzania, and United Kingdom.

Significant Projects

Dry Bulk Terminals

New Multi-Commodity Dry Bulk Port, Ploče, Croatia - Project Manager responsible for directing comprehensive engineering and designs, technical specifications, and tender documents for the construction of a new Bulk Cargo Terminal to handle iron ore, coal, and bauxite. System features include: ship loading and unloading, railcar loading, open storage, marine structures, roads, railyard, foundations, buildings, utilities, and environmental protection. Responsible for the preparation of technical specifications and tender documents for the procurement of: travelling gantry grab bucket ship unloaders; traveling shiploader; traveling, slewing, stacker; traveling, slewing, bucketwheel reclaimer; and train loading station.

New Multi-Commodity Dry Bulk Port, Bargny, Senegal - Project Manager responsible for directing financial, economic, and market studies as well as preliminary engineering designs for the development of a new Bulk Cargo Port to handle iron ore, phosphate, bauxite, alumina, fertilizers, cement, and coal at Bargny, Senegal, which is 35 km south of Dakar. Existing phosphate, bauxite, alumina, fertilizer, and cement handling facilities presently located at the Port of Dakar will be moved to the new port facility at Bargny. Provision will be made for the import of coal for a proposed power plant. This multi-product bulk cargo port will include ship loading and unloading, railcar loading and unloading, open and covered storage, offshore marine structures, roads, rail loop, foundations, buildings, utilities, and environmental protection.

New Coal Loading Terminal on the Mississippi River, Plaquemines Parish, Louisiana - Project Manager for feasibility study for a new coal loading terminal. Directed all engineering activities. Project features included rail car unloading to open ground storage via conveyors and traveling stackers; bucketwheel reclaim system to a travelling shiploader. Other works included dredging, marine structures for Cape Size vessels, rail loop, roads, foundations, buildings, utilities and environmental protection.

Alaska Nitrogen Products, Kenai, Alaska - Project Manager for preliminary engineering study to increase urea prill throughput, decrease dust emissions, and decrease product degradation for fertilizer plant. Managed engineering study of ice floes and their impact on vessels moored at the berth. Recommended alternatives to minimize ice impact on vessels and improve the mooring of vessels at berth.

Master Plan for the Expansion of the Port of Jorf Lasfar, Morocco – Project Manager responsible for providing the planning, material handling, environmental impact, and risk assessment for the project. The port was built in approximately 1970, primarily to import and export phosphate bulk products for the Group OCP process plant located nearby. It consists of 14 berths and ancillary installations such as fishing harbor and dry dock. Group OCP intends to make the port a hub for phosphate processing and will more than double their plant capacity. The consultant team consisting of C.I.D., Egis, and Cardno TEC developed the Master Plan that includes the construction of six new berths and bulk material handling systems for the export of phosphate, fertilizer, phosphoric acid and the import of coal, and sulfur.

New Iron Ore and Manganese Export Terminal, Ivory Coast - Project Manager for the feasibility study of a new iron ore export terminal, Ivory Coast. Directed field reconnaissance to collect and evaluate data at alternative sites. Directed all engineering activities. Dry bulk material handling system included: rail car unloading to ground storage via conveyors and traveling stackers; bucket wheel reclaim system from ground storage to a dual linear ship loader at an offshore berth. Other works included offshore marine structures for Cape Size vessels, roads, rail loop, foundations, buildings, utilities, and environmental protection.

Conceptual Engineering for New Coal Unloading Terminal in Pipivav, Bandar, India for POWERGEN - Directed field reconnaissance and conceptual engineering designs including the analysis of alternatives for pier structure, ship unloading, stacking, reclaiming, and bulk material conveying systems from unloading terminal to new power plant.

New Coal Unloading Terminal for Office D'Exploitation des Ports (ODEP), Jorf Lasfar, Morocco - Project Manager for the conceptual through final engineering design. Directed conceptual engineering designs including the analysis of alternatives for extending and upgrading an existing pier to allow for the berthing of 100,000 DWT bulk carriers. Alternatives for caissons versus a pile supported structure, dredging, ship unloaders and bulk material conveying systems were studied. An in-depth economic analysis of shipping and material handling costs completed this stage of the project. Managed the preparation of technical specifications and tender documents for the procurement of: grab bucket unloaders, conveyor system, sampling, emergency storage and railcar loading.

Cardno
Shaping the Future

New Iron Ore Terminal at Port of Corpus Christi Authority, Texas - Managed basic engineering for proposed iron ore terminal consisting of a new dock for the berthing of 100,000 DWT bulk carriers, dredging, a traveling ship unloader, conveyor systems, stacking and reclaiming systems, train loading, 200 ft. X 550 ft. storage building, maintenance shop, potable water, fire protection, electrical power supply and power distribution and site work including drainage and plant roads.

Expansion of Petroleum Coke Terminal at Port of Corpus Christi Authority, Texas - Managed detail engineering for the expansion of petroleum coke storage and shiploading systems including new conveyors and reclaim facilities for new pet coke storage facility.

New Coal Loading Terminal in Beira, Mozambique - Project Manager for feasibility study for a new coal loading terminal. Directed field reconnaissance in Beira, Mozambique to collect and evaluate data at alternative sites. Directed all engineering activities including technical and economic analyses. Project features included rail car unloading to ground storage via conveyors and traveling stackers; bucketwheel reclaim system to a linear shiploader at an offshore berth. Other works included dredging, marine structures for Cape Size vessels, rail loop, roads, foundations, buildings, utilities and environmental protection.

Logistic study for CMS Generation's Coal Unloading Terminal at the Port of Jorf Lasfar, Morocco. Project Manager for an operations and logistics study for a new coal terminal. Managed computer simulations of coal supply chain from loading ports to the unloading terminal in Jorf Lasfar, Morocco. The analysis confirmed that the terminal could import 5.0 million tons of coal per year without the need to dredge the berth to receive larger vessels. Stockpile inventory was monitored to confirm minimum and maximum stockpile fluctuations. Determined probable demurrage/dispatch fees for the terminal.

Port of Corpus Christi Petroleum Coke Loading Terminal, TX - Project Engineer for detail design and procurement of a 1500 TPH, Multi-Product Bulk Materials Shiploading Terminal for the Port of Corpus Christi Authority, in Corpus Christi, Texas.

New Iron Ore Import and Coal Export Terminal, St. James Parish, Louisiana - Project Manager for basic engineering study for a new iron ore import and coal export terminal on the Mississippi River. Project consisted of two separate berths for ship/barge loading and unloading on a "greenfield" site. Other features included railcar unloading and loading, conveyor systems, stacking and reclaiming systems, site preparation, utilities, maintenance shop, and office building.

New Coal Terminal in Jacksonville, Florida - Assistant Project Manager during conceptual design, detail design, and environmental permitting of St. Johns River Coal Terminal. The project included dredging works, a new pier, a traveling ship unloader rated at 1500 TPH, a 3.2 mile long conveyor system, a traveling stacker and a 2000 TPH bucketwheel reclaimer and their foundations, as well as service buildings/maintenance shop, plant roads, site improvements and utilities including sewer, potable water supply, fire protection and electric power distribution and controls. Responsible for the coordination and supervision of all aspects of the project including environmental permitting, design, and contractor bid evaluations and contract awards.

Liquid Bulk Terminals

Feasibility Study of a new LNG Receiving Terminal at South Riding Point, Bahamas - Project Manager for developing feasibility study. Features of this project included the analysis of alternatives (offshore vs. near shore) for receiving LNG tankers, oceanographic studies of wind and wave formation, and developing requirements for dredging, breakwater, and maritime structures.

New Petroleum Products Loading Terminal, at El Dekheila, Alexandria, Egypt - Project Manager for basic engineering, detail design and procurement services for new petroleum products loading terminal. Features of this project include a new finger pier, dredging for the new berths, and electro-mechanical systems for the loading of gasoline and diesel fuel, six marine loading arms, related pumps, piping, tankage and fire protection systems. The project also includes petroleum coke storage facility, conveyor system, traveling shiploader, office/control building and workshop.

Feasibility Study for New Petroleum Products Unloading Terminal, San Pedro, Cote d'Ivoire - Program Manager for feasibility Study for a new petroleum products loading terminal. Features of this project include a new finger pier, dredging for the new berths, and electro-mechanical systems for the unloading of gasoline and diesel fuel, including related pumps, piping, tankage and fire protection systems.

Container Terminals

New Deepwater Container Transshipment Terminal, São Tomé e Príncipe - Project Manager for the feasibility study of a new container transshipment terminal to serve the West Africa Region. Directed field reconnaissance to collect and evaluate data at alternative sites. Directed all planning, engineering, and operational studies including technical and economic analyses. Mr. Veilleux also led the efforts for developing a Public-Private- Partnership for the port concession and successfully negotiated a concession agreement on behalf of the Government of São Tomé e Prìncipe with a major container shipping line.

Port of Anchorage Expansion Program, Anchorage, Alaska - Project Manager responsible for the conceptual development, basic engineering, procurement, and construction phasing plan for the redevelopment of the Port of Anchorage Marine Terminal. Features of the project include a new 10,000-foot wharf, 170 acres of reclaimed land, 9 berths and related cargo handling and storage systems for servicing cruise, POL, cement, container, RO-RO, multi-purpose, military, barge and inter-modal rail and truck traffic. Provided facility plans and layouts for the ports two container terminals. Responsible for developing construction estimates, construction schedules, tender documents, and project systems requirements for wharf structures, pavement, cranes, storm water drainage, sewer, and buildings.

Master Plan Study for the Port of Haina, Dominican Republic - Served as Project Manager for a terminal Master Plan Study for CSX World Terminals. Features of Master Plan included cargo forecasting, economic benefit analysis, facility layout and development plan for container handling, dry bulk handling, and RO-RO facilities.

Mohammedia Container Terminal, Mohammedia, Morocco - Project Manager for preliminary engineering for a new container terminal. Managed the conceptual design of container terminal including new wharf, backlands, container handling equipment and layout, storage yard, container freight station, workshop and office buildings, site preparation and utilities.

Port Assessments

Millennium Challenge Corporation (MCC) - Assessment of Port of Cotonou, Benin – Senior Port Engineer responsible to review and assess the need and rationale for expansion, rehabilitation and restructuring of the Port of Cotonou, Benin. Conducted a physical survey of port characteristics. Reviewed and analyzed: shipping trends in the region, prospects for containerization, port operating patterns, performance rates, port design and layout, and operational constraints. Recommended a port development plan to meet the projected cargo throughputs for clinker, gypsum, petroleum products, container, RO-RO, and general cargo. Subsequently acted as Independent Engineer for MCC over the 5- year project development period.

SADCC Transportation Investment Priority Assessment (STIPA) Project - Senior Port Engineer for the DADCC Transportation Investment Priority Assessment (STIPA) project for USAID, Harare, Zimbabwe. Directed field studies to review traffic flow at the Port of Dar es Salaam, Tanzania and the ports of Maputo, Beira, and Nacala, Mozambique. Compared the demand projection for these ports with current capacity and determined whether additional capacity would be needed over the forecast period. Identified the constraints that inhibit port capacity and operating efficiency including management aspects and physical infrastructure.

Development Planning for Suez Canal Area - Served as Senior Port Engineer for a study on the increase in sea transports in the Mediterranean Sea and development plan of Suez Canal Area. Directed field studies at Port Said and the Port of Damietta, Egypt. Analyzed cargo handling capacities and demand projection and determined a development plan for Port Said. Analyzed operation at the Suez Shipyard and determined requirements for the modernization and expansion. Supervised the engineering activities for feasibility study on the widening and deepening of the Suez Canal. Prepared four alternative designs to accommodate vessels ranging from 180,000 DWT to 300,000 DWT including drawings, specifications and cost estimates.

PUBLICATIONS

- *Growth in West Africa means private port investment opportunities*, Port Technology International, 35th Edition, autumn 2007
- *West Central Africa's Transshipment Terminal: São Tomé Principé*, proceedings of the Ports 2007 Conference sponsored by the American Society of Civil Engineers (ASCE).
- *Planning and design of a new petroleum products terminal at the Port of El Dekheila, Alexandria, Egypt*, proceedings of the Ports 2001 Conference sponsored by the American Society of Civil Engineers/Permanent International Association of Navigation Congresses (ASCE/PIANC).

INVITED SPEAKER at the following seminars:

- *Port Investors Forum*, Lloyd's List Events, June 2002
- *Marine Terminal Management Training Program, American Association of Port Authorities, January 2001*

Cardno
Shaping the Future

Joseph Pirozzi

[illegible] Position
Sr. Material Handling [illegible]
Consultant

Discipline Area
[illegible] Design,
Construction [illegible]
Operations [illegible]
Bulk Terminals

Years' Experience
[illegible]

Joined Cardno [illegible]
Consultant
[illegible]

Education
B.S. [illegible]
Engineering [illegible]
[illegible]

Professional Affiliations
[illegible]
Wharfer Senior [illegible]

Summary of Experience

Mr. Pirozzi has over 50 years' professional experience in the planning, design, construction and operations of dry bulk and general cargo terminals with in-depth knowledge of material handling equipment and systems and operation and maintenance of dry bulk handling port facilities. Mr. Pirozzi started his career as a designer of bulk handling systems and worked his way up to become VP of Engineering and Facility Operation at Orba Corporation and General Manager at Soros Associates; both prestigious firms specialized in the engineering of ports and bulk handling systems. In the process, he was responsible for engineering, construction and operations of several bulk terminals in the US including the Superior Midwest Transhipment Facility, which receives 20 Mtpy of coal by unit train for storage and loading on to 65,000 DWT vessels.

Significant Projects

Expansion of Iron Ore Shiploading Terminal, SNIM Nouadhibou, Mauritania

The project consists of expanding the existing material handling system with a new conveyor route to a new shiploading system capable of loading 50,000 dwt to 250,000 dwt vessels at 10,000 tph design rate. Responsible to review all designs for the material handling system including the marine works and report periodically my findings and recommendations to the lenders and SNIM. Consulting serviced included:

- Review design criteria
- Review purchase specifications
- Review progress and compare against the milestone schedule reporting deviations and or progress if any
- Carryout shop equipment inspections and shiploader fabrication
- Prepare for SNIM the guidelines for deliverables, testing, training, no load and full load testing, QA/QC guidelines, operating and maintenance manuals, commissioning procedures and acceptance requirements.
- Existing car dumper evaluation and overseeing SNIM's repair and system upgrading as per original manufactures recommendation including system reliability
- In order to accommodate export increases from 12 to 24 to 30 mtpy assisted SNIM in evaluating future dual rotary car dumper installation offering recommendations and improvements for the downstream conveyor receiving system and storage pile assessment.
- Reviewed SNIM's purchase equipment for track and concrete tie placement, rail and weld testing.

- Reviewed SNIM's new precast rail tie operation.
- This project is on-going and completion is expected by the first quarter of 2013. Mr. Pirozzi continued to provide reports, recommendations to the lenders and SNIM until project completion.

CVG Bauxite Facility, Guinea, Conakry

Project Director responsible for the overall assessment of CVG's existing mining, railcar loading, and railroad system from mine to process plant, railcar unloading, storage and reclaiming and shiploading systems. The engineering investigation produced the following:

a) Developed a simulation program that allowed CVG management to understand their current throughput bottlenecks for each link of the operation and how each affected throughput and cost.
b) Provided recommendations for improving operations, maintenance, and throughput; specifically,
   1. Railcar loading
   2. Railcar unloading at the process facility
   3. Rail transportation by including the addition of rail sidings to improve railcar transportation to and from the process plant.
   4. Stockyard expansion to increase throughput and eliminate stoppage at the crushing station and other transfer points.
   5. Conveyor modifications to increase conveyor system availability at or above 95%.
   6. Redesign of transfer chutes to eliminate plug chute conditions.
   7. Shiploading and docking modifications to reduce loading time between vessels and demurrage costs.
   8. Provided in-motion belt weighing scales to reduce or eliminate draft surveys.
   9. Conveyor modifications to increase belt handling capacity.
   10. Benefits of switching from a hard wire relay electrical control system to a programmable control system.

Basic Engineering for a Multi-commodity Dry Bulk Port, Punta de Cachos, Chile

Provided consulting engineering for OMX's loading and unloading facility in Punta Chile. Project consisted of a 6 mtpy coal import pier, 8 mtpy iron ore and 1 mtpy limestone export pier, and 2 mtpy copper consecrate export pier. Engineering services consisted of developing; basic design drawings, design criteria, equipment specifications, budget cost estimate, milestone schedule.

Project Manager, Construction Manager, Commissioning Chief and Vice President for Operations of Superior Midwest Energy Terminal, Superior, WI

Responsible for meeting the project objectives within budget, schedule and customer satisfaction. Also obtained permits, preparing EIS, established design objectives, commissioning and operator training. Project Description- A coal transshipment terminal designed to handle an annual throughput of 12 million tons low sulfur coal to Detroit Edison's electric power generating plants. The fast track project was completed in 2 months. The material handling system was designed to receive and unload unit trains consisting of 110 cars, each carrying 100 tons of coal, unloading the unit train within 3 to 3 1/2 hours, conveying the coal to storage. Reclaiming and loading 65,000 DWT self-unloading vessels. The major field segments were geotechnical, site reclamation and stabilization, dredging, offshore berthing structure, railroad track works,

and thaw shed, diesel oil fuel storage, site drainage, water treatment, dust suppression and dust collection systems, fire protection, soil improvement in the storage area to support a 100 ft. high coal pile. Computerized maintenance and inventory control program. The conveyor system was designed to receive and stockpile coal at the rate of 3500 TPH with the reclaim and shiploading system designed to load vessels at the rate of up to 11000 TPH. The coal handling design avoided the use of a surge bin. DC conveyor drives were selected over conventional drive systems to permit frequent start-stop under fully loaded conditions, maximum control, such as variable speed/torque, control acceleration and for dynamic braking. Some of the project statistics were: concrete poured 25,000 yards; set 200 tons of reinforcing steel, dredged 140,000 yards on-site disposal; imported and placed 1,000,000 yards of additional fill; berth piling (150 ton capacity) drove 8300 linear ft. Construction man hours/month averaged 46,000 through a 16-month period. The Superior Midwest Terminal was selected one of ten Outstanding Engineering Achievements by the National Society of Professional Engineers.

Feasibility Study for a New Iron Ore and Coal Loading Port, Goa, India

Project director for a feasibility study of an off-shore transloading iron ore and coal facility located 27 km off shore at a concrete storage silo capable of storing 400,000 tons of iron ore. Concrete caissons were designed to accommodate loading and unloading equipment capable of servicing barges to Capesize vessels. The caisson equipment is capable of simultaneously unloading and loading vessels and included a slewing and luffing shiploader capable of loading three hatches of a 300,000 dwt vessel without having to reposition the crane and 3 grab bucket unloaders. Responsible for the preparation of preliminary designs, evaluation of grab cranes for the unloading of barges and Capesize vessels and grab unloading from the storage silos to receiving conveyor system for loading Capesize vessels. Executed a detailed computer simulation study to determine the required number of barges to support iron ore throughput of 20 MTPY. Prepared a bankable feasibility study report for the purpose of obtaining debt financing. Prepared bidding documents and evaluated all prospective bidders and issued a recommendation report to the client.

Comprehensive Engineering and Design, MIDTAP Liquid & Petroleum Coke Terminal, Alexandria, Egypt

Project Director of new loading facilities exporting liquid and solid petroleum products for MIDTAP Middle East Tankage and Pipelines at the Port of El-Dekheila, Alexandria, Egypt. The dry bulk material handling system consists of a petroleum coke storage pile, which is stacked and reclaimed by mobile equipment. The petroleum coke is reclaimed to a dozer trap that feeds the receiving end of the approach conveyor to the jetty. From the approach conveyor the material is transferred to the shiploader via a traveling tripper and is loaded aboard vessels up to 25,000 DWT. The petroleum loading facility will load two families of products: gasoline (regular and premium) and diesel/kerosene/jet fuel, aboard tankers up to 50,000 DWT over two berths, each equipped with three loading arms, two for loading the petroleum products and one for accepting waste water from the ships. A 20 kilometer long 20 inch diameter pipeline will carry the products to the pier. Facilities include onshore components (pipelines, storage yards, buildings, wastewater facilities) and offshore components (pier and approach trestle, shiploader and conveyor systems, electrical and control systems, petroleum loading arms, fire protection). Services provided include conceptual design, detailed specifications and bid documents, review of construction and equipment fabrication bids, technical review of suppliers' designs, fabrication and assembly, construction management and field supervision

Bryant Coal Handling Facility, AL

Responsible for Facility Operation - Annual throughput 6 million tons per year. Bulk coal is inbound by barge; unloaded, stockpiled, blended, reclaimed and delivered to rail loadout station in which unit trains are loaded. The association with this facility was to be responsible for upgrading designs provided by others, so as to achieve optimum throughput reliability, flexibility and assurance of the blended product as required by Georgia Power. During the course of my involved with this operation, I implement an improved painting and protection of structural steel, redesign of bucketwheel chain increasing operating chain life from 10 to 18 million tons. Improved all transfer minimizing spillage. Provided washdown systems at all the transfers, installed concrete containment slabs with sump pumps for disposing of the washdown water containing coal.

Iowa Gateway Terminal, Keokuk, IA

Project Manager. Responsibilities included: the design supply, erection, commissioning and operation of a coal handling system, also permitting, preparation of environmental impact statement, geotechnical, civil, railroad track work, and operator training. A coal transshipment terminal designed to handle 3 million tons per year with expansion to 8 MTPY. Coal is received by unit trains, unloaded via a rotary car dumper at a rate of 3500 TPH, and conveyed to a highline fixed stackout structure. Coal is reclaimed and conveyed to a traveling shuttle barge loader. Project duration: 3 years.

Coal Blending at Union Electric's Labadie Power Generating Station

Project Manager. Represented the client as their architect/engineer responsible for geotechnical, civil, structural, subcontract placement, and selection of equipment, construction management, commissioning and operator training. The facility was designed to receive both high and low sulfur coal from rapid discharge bottom dump unit trains, with both grades of coal stored separately. The material handling system was controlled via a programmable logic control system. Key facility features were: The building of earth reinforcing wall 80 feet high; pre-cast concrete plow feeder reclaim tunnel; traveling stacker; blending bin; electrical/mechanical system to control the rate in which coal was withdrawn from each stock pile; power distribution; sub-systems controlled by P.C and in turn by master programmable logic controller. Project duration: 2 1/2 years.

Coal Transshipment Facility for the Port Authority of New York and New Jersey

Project Manager. Responsible for preparation of preliminary study report, evaluating 3 alternate sites, permit assessment, capital and operating costs, ability to expand at a future date to 20 million tons per year, likelihood of obtaining permits, and evaluate the proposed facility's competitiveness against other east coast coal terminals. Following the Preliminary Study, prepared a final report on the selected site, including an environmental impact assessment, design, cost, schedule, equipment selection, electrical power, supply, distribution and control system. The main features were rail loop system, twin car dumper station, storage of up to 6 grades of coal, underground plow feeder reclaim system, offshore dock structure sized to load two 150,000 DWT vessels simultaneously, a separate berth to load 1500 ton barges, site drainage, water treatment, dust suppression, fire protection, navigation aids, and complete emergency power plant. Project duration: 1 1/2 years.

Feasibility Study Iskenduren Bay Power Station, Turkey

Project Manager. Responsible for preparing project feasibility study report for the coal handling system: The report included Background Data, Port Development Parameters, Port Structures, Bulk Cargo Handling, Project Implementation Program, Quantity Estimates, Capital/Operating Cost, Facility Staffing, Training Program, and Environmental Issues/Design. Key features: Receive, unload, stockpile, reclaim and distribute thermal coal to support a 4-Unit -350 MW power station, provide staged construction for a 20 Million TPY coal handling port facility, berthing dock to accommodate up to 300,000 DWT vessels, continuous coal unloaders, stackers, reclaimers, crushing, sampling and weighing stations. Also receiving of domestic coke, iron ore stockpiling, reclaiming, and loading ships and barges.

Port Richmond Coal Terminal, Philadelphia, PA

Project Manager and Facility Operator. Responsible for executing all project management functions and operations of the facility. Project entailed rehabilitating and converting an existing grain handling terminal to handle anthracite fines received from bottom dump unit trains, conveyed to storage, reclaimed and loaded onto 40,000 DWT ocean going vessels. The design improvements as implemented increased material flow from 500 to 1500 tons per hour. Upgrading the existing relay logic to Programmable Logic Controller system: Upgrade the existing material handling system to accommodate anthracite coal fines. This included increasing belt speed, horsepower, ground storage capacity, upgrading the reclaim systems, modify existing trippers to accommodate increased belt tensions, modify chute design to allow for increased flow rate, and strengthening existing structural support systems. Project duration: 1 year. Manager of Operations: 4 years.

Mohammedia Coal Handling System for O.N.E., Morocco

Project Manager. Responsibilities included developing the material handling system, design and supply of all sub-systems, international procurement of all material handling equipment, field supervision, training, and commissioning. Managed the work through design offices in U.S.A., Paris, France, and Morocco. The project consisted of bottom dump car unloading of coal received by rail and truck to an outside storage area utilizing a concrete stacking tube. From ground storage the coal was reclaimed, crushed and conveyed to the power plant.

Project Management, Tampa Electric Gannon Station, FL

Coal receiving, storage, reclaiming and loading the power station silos. Represented the client as their architect/engineer. Responsibility for all designs: mechanical, structures, electrical, civil, preparing tender documents, specifications, evaluating tender documents, selection of contractors and award of work; supervised construction. Commissioned and performed operator training. Main features: rail car unloading, radial stack out tower, upgrading existing relay control logic to P.C., automatic sampling system sampling system added and upgrading existing crushing station.

Provided engineering and advisory services Carbones Del Guasare Maracibo Venezuela S.A.

Provided engineering and advisory services that included:

- Improve the existing and tug boat operations
- Prepared the contract for the coal transloading from the barge to the moored vessel to ocean going vessels

- Evaluated proposals and made recommendations regarding which firm was best suited to implement the transloading operation
- Perform desk type computer study evaluating the potential transloading throughput of the recommended firm.
- Provided inspection services of the vessel to be modified and its barge unloading cranes and shiploading equipment.
- Improve mine throughput, truck transportation, coal storage and reclaiming to an existing barge loading facility

Management duties, Lorain Pellet Terminal for Republic Steel, Lorain, OH

Project Manager and Commission Chief. Responsible for directing and executing all management functions including the commissioning of the facility operation, and training. This included permitting, water treatment, dust control, rail track works, geotechnical, civil, mechanical and structural engineering. The terminal was built as a transshipping point for the bulk movement of taconite ore pellets from the upper Great Lakes to the steel mills in Ohio. The project objective was to design and construct the facility on a fast track schedule so that the newly commissioned 1000-ft. self-unloading vessels could be used, as they became available. The entire system was controlled from a central control station. Key facility features included a berthing dock face incorporating three different designs, reinforcing an existing crib wall section, designing and constructing a caisson and sheet pile section, new rail track works, and rerouted existing track, rail load out station, ship loader, dust collection, dust suppression, fire protection, drainage and runoff retention pond, administration and maintenance buildings and landscaping. The conveyor system was controlled via a programmable logic controller. The load out station operator controlled the movement of trains from the rail yard to the loading station and back by remote control. A separate PC system was provided in the operations office recorded and printed out all facility management data including inbound/outbound shipments, including grade and amount of pellets in storage. The Lorain Pellet Terminal was selected as one of the ten Outstanding Engineering Achievements by the National Society of Professional Engineers.

Aggregate transportation system for the Vulcan Company, Yucatan, Mexico

Project Manager. Responsibilities included design of material handling system on board a 65,000 DWT self-unloading vessels. The land based system included crushing, blending, stockpiling, reclaiming and loading 65,000 DWT ocean going vessels. Responsible for developing the design criteria, specifications, tender documents for the major material handling equipment: stacker, bucketwheel reclaimer and shiploader. Evaluated tender submissions and made selection of contractors. The facility throughput capacity is 12 MTPY.

Dexing Jiangxi copper project in the People's Republic of China

Project Manager. Responsibilities included system design, cost, schedule, procurement, quality assurance, quality control, operator and maintenance training, field supervision, commissioning and acceptance. To satisfy local supply requirements, selected a PRC design/ manufacturing firm for the supply of structural steel, idlers and low tension pulleys, implemented full inspection program and managed quality control. The major sub-system features were: Conveyor belts running at 4.5 m per second, belt rip detection system, dust suppression, sonic detection system, braking system, high and low voltage equipment, TV monitoring system, PC control systems, operations and maintenance programs, central control consoles, local control consoles, design of multi-drive speed control transmission systems.

Project Management, Tarahan Transportation System, Indonesia

Responsible for the management of design work which included: structural, mechanical, and electrical works, preparation of design and procurement specifications and equipment selection for the coal handling system. The system design consisted of receiving mine mouth coal, stockpiling, crushing, reclaiming and loading ocean-going vessels.

Project Management, A.T. Masse, Charleston Shipyard River Coal Export Terminal, SC

Responsible for the design, supply of the materials handling system, preparation of tender documents, selection of contractors and site supervision commissioning and operator training. Project consisted of unloading coal from unit trains, discharging same to an outside storage/reclaiming and loading ocean going vessels.

Sparrows Point Sinter Project, Bethlehem Steel Corporation, Sparrows Point, MD

Project Engineer. Responsible for supervision of design, procurement, erection and commissioning of the material handling system. The system consisted of receiving and loading different grades of material to mixing bins. From the bins material was reclaimed and transported to a traveling stacker that layered the material, forming a 1000 foot long pile. The completed pile was then reclaimed via a bucketwheel reclaimer and conveyed to the sinter plant.

Washington Irrigation and Development Co., Centralia Coal Mines, WA

Project Engineer. Responsible for supervision of design, procurement, erection and commissioning of a shiftable conveyor system. The conveyors received overburden from a bucket wheel excavator. The overburden conveyors feed a traveling tripper which feed a crawler mounted twin boom stacker. The stacker was designed to discharge overburden material in to an earthen depression. The crawlers were designed to travel across an uneven terrain. Responsible for the entire shiftable conveyor design, supervised mechanical, structural, electrical, and purchasing group leaders. Also involved with the startup, shifting operation and conducted operation and maintenance training programs.

Big Stone Power Plant through Bechtel Corporation, Ottertail Power Company, Big Stone, SD

Project Engineer. Responsible for supervising mechanical, structural, electrical, and purchasing department staff. Also conducted operation and maintenance training. Project consisted of unloading lignite from unit trains, delivering the coal to storage, reclaiming the coal, crushing and transporting to power house silos. Key features: bottom dump train station, crusher building; trippers; design of enclosed structures with inside siding thus preventing dust build up; wash down and fire protection system.

Harrison Coal Power Generating Station, Allegheny Power & Light Company, Clarksburg, WV

Project Engineer. Responsible for supervising mechanical, structural, electrical, and purchasing department leaders. Also participated in the construction management and commissioning of the conveyor handling system including operator training. The project consisted of 2-mile overland coal conveyor feed system to the power plant. The coal was stored, reclaimed via plow feeders, crushed and transported to the bunkers. In addition an emergency coal supply system was provided which included rail and truck receipts of coal

Pennsylvania Power & Light Montour Generating Station, Danville, PA

Project Engineer. Responsible for supervising; mechanical, structural, electrical, and purchasing group leaders. Also conducted operations and maintenance training programs. The project consisted of receiving coal from unit trains; unloading via a rotary dumper, processing the coal, and delivering coal to either the bunkers or outside storage.

Dayton Power & Light Co., J.M. Stuart Generating Station, Aberdeen, OH

Project Engineer. Responsible for the design, erection and commissioning of the coal handling system. The project consisted of supplying processed coal to support 4-250 MW coal fired power units. The stacking system consisted of unloading coal from barges at a peak rate of 4000 tph and transporting the coal to a stacking out tower. At the tower, tramp iron was removed and coal sampled. Coal was then discharged onto a 150 ft. long slewing boom conveyor which formed an outside storage area. Under the reclaim pile laid 48 stainless steel hoppers with vibrating feeders loading ten (10) conveyors discharging to a dual conveyor which transferred fuel to the crushing station. Within the crushing station, tramp iron was removed and coal discharged onto two 1200 ft. long conveyors. Processed coal from these conveyors was delivered to a 200 ft. high surge bin building. At the bin discharge six vibrating feeders were mounted for centering and directing the feed to 6 conveyors for feed to the pulverizes . Supervised mechanical, structural, electrical, and purchasing group leaders. Also, conducted operation and maintenance training.

United Illuminating Co., Bridgeport, Connecticut Coal Handling System

Project Engineer. Responsible for the supervision and design of the coal handling system. This project consisted of several major structures, crushing station, rotating stacker, rail system galleries, bents and towers. Supervised; mechanical, structural, electrical, and purchasing group leaders. Also conducted operations and maintenance training programs.

Pennsylvania Power & Light Co., Brunner Island Coal Handling Station, PA

Project Engineer. Responsible for the design supervision of the coal handling system. Project consisted of providing an extension to their existing facilities that included a parallel feed to the silos; the engineering entailed the investigation of existing structures (trusses, bents and buildings). Developed all the design specifications for both new and existing structures. Supervised mechanical, structural, electrical, and purchasing group leaders. Also conducted operation and maintenance training.

Publications

Association of Iron and Steel Engineers Pittsburgh, Pennsylvania: "Lorain Pellet Terminal for Republic Steel"

Coal Technical Conference, Houston, Texas: "Proposed Coal Export Terminal for the Port Authority of New York and New Jersey"

The Project Management Institute: "Project Management Perspective"

National Coal Association, Chicago, Illinois: "Simulation Study Assessment for Port Transshipment Facility".

Employment History

Seven (7) years as General Manager of Soros Associates, Inc. from 1994 to 2001. Responsible for the planning and directing of all Soros activities during that time. Supervised all engineering, design, planning, cost estimating, and quality assurance of numerous port development and material handling projects located worldwide, including: Australia, Egypt, Venezuela, Chile, Colombia, Brazil, Bahrain, Indonesia, Guinea, Morocco, Mauritania, Surinam, South Africa, Spain, United Kingdom and United States.

Four (4) years as Director of Business Development, with Krupp (O&K& PWH) Robins Engineers & Constructors, Inc. Responsible for business development, field servicing of existing Krupp, O&K and PWH machines, execution of proposals, preliminary designs, pricing of bulk handling system including construction, establishing mark up levels, before and after sales, customer contact, spare parts, and business plan development. Reporting to this position: outside Regional Sales Managers, local Representatives, Spare Parts Manager, Engineering personnel. (1989-1993).

Fifteen years with Orba Corporation, New Jersey. VP of Engineering and Facility Operation Responsible for all project activities; project managers including the technical support staff. This included design, estimating, purchasing, expediting, scheduling, construction, commissioning, facility operations, marketing and sales. Objective to achieve a system design that is technically sound, easy to operate and maintain, within budget, on time completion and customer satisfaction. Senior Project Manager 1976-1981. Managed major turnkey bulk handling projects, meeting project objectives, within budget, on time completion and customers' satisfaction. Duties included: schedule planning, budget allocation and controls; contract negotiations, inter-department coordination, project staffing technical and field; schedule adherence, project reports, conduct all project meetings with the client; construction and commission activities; release of payments, and obtain final acceptance. Manager Mechanical Engineering, 1974-1976. Responsible for all bulk material handling mechanical designs for the company, assigning technical staff to projects, reviewing all company works to assure conformance with the project requirements ,company standard; heavy machinery selections, conveyor design, equipment selection, transfer station design, sub-contract selection, shop and field inspection, estimating, scheduling, client contact, maintaining a competent staff.

Seventeen years with Robins Engineers & Constructors, Inc., New Jersey (1957-1974) Project Engineer: Responsibility for the supervision and design of bulk handling systems conveying and processing materials such as: coal, coke, lignite, (brown coal), iron ore, iron ore pellets, alumina, bauxite, cement, grain, gravel, gypsum, limestone, copper ore, copper concentrate, phosphate, sand, scrap iron and wood chips. Directed all project related engineering activities, preparation of specifications, designs, conforming to company standards and maintaining schedule. Monitored project manager actives; budget, schedule, purchase order releases, facility design, meeting project design objectives; conduct technical meetings with the client, pricing and executions of scope changes; review and inspection of erection and commissioning; operations and maintenance training. Lead Designer: responsible for material handling systems designs which included: conveyor calculation, estimating, structural designs; bents, buildings; mechanical layout of stackers, shiploader, self-unloading vessels, trippers, shuttles, screening, crushing ,drying stations, shafting design, equipment selection, design specification, scheduling, technical advisor, Quality Control/Assurance of manufactured/fabricated works. Designer/Layout: Responsibilities included layout and design of specific areas on a given bulk handling project, example: car dumper

stations, stock yards, reclaimers, stackers, ship loaders, shiftable conveyors, transfer stations, conveyor drives, take up arrangements, design and detailing of chutes and structural steel.

CCIG/OBOT/TLS RESPONSE TO CITY 9/28/15 QUESTION #16

16) With respect to emergency response planning and actual operations?
TLS will operate a multi-commodity bulk terminal, and no commodity has been specifically included or excluded from the TLS terminal operation. Preliminary measures for emergency response planning were included in the TLS Draft Operating Plan submitted to the City on September 8, 2015.

a. What is the public safety/combustion risk of coal?
There is no substantial public safety risk associated with the combustion risk of coal. CCIG previously submitted as Attachment 1 to HDR's *Air Quality & Human Health and Safety Assessment of Potential Coal Dust Emissions (September 2015)* (HDR Report) an assessment that (1) examines the risks of fire and combustion related to handling of coal at OBOT, and (2) recommends mitigation measures that will ensure the safe handling of coal. That information is captured in the *Technical Memorandum with Respect to the Potential Bulk Transfer of Coal at the Proposed Oakland Bulk and Oversized Terminal Project (September 15, 2015)*, authored by Peter L. Senez of Jensen Hughes (Jensen Hughes Technical Memorandum). Mr. Senez is a recognized expert in the field of fire protection and forensic engineering with 25 years of experience and an advanced degree specifically in Fire Protection Engineering. (See Exhibit 16-A for a copy of his credentials). He has expertise in fire engineering, building and fire code consulting, fire testing, and risk and failure relative to fires and explosions, and he is familiar with related risks in the coal-handling and marine terminal contexts.

As discussed in the Jensen Hughes Technical Memorandum, coal is a chemically stable material that has typical risks associated with the handling of bulk commodities such as sugar, grain, wood chips, sulphur, or other materials. Proper operation, storage, and handling allows for the control and mitigation of potential fires and explosions during the transfer process. These hazards are well understood by industry. Handling of coal at OBOT does not present a disproportionate hazard compared to other commodities, all of which have a strong safety track record and infrequent event occurrence. The fire and life safety risks associated with the movement of coal and other bulk materials is readily addressed using good, standard fire protection engineering practices.

In addition to discussing the general risks of fire and combustion from coal handling, the Jensen Hughes Technical Memorandum recommends specific facility design and procedural measures that would effectively mitigate the risk of fire and explosion at OBOT.

b. Does the transport, containment present the potential for catastrophic explosion or fire danger?
During transport of coal via train, fire risk will be negligible due to the nature and type of coal being shipped (low potential for spontaneous combustion), the short duration of transport (limited to a few days of travel), the proper conditioning of

the coal at the mine (pre-transport controls), and the cooling effects of air on the cars and the surface of the coal. Using enclosed cars will further reduce potential exposure of the coal to rain and other atmospheric moisture, which further reduces the already low potential for spontaneous combustion (as heat within stored materials is generated via moisture). The safe handling of coal (and every other combustible commodity like coal) is supported by data published by the Federal Rail Administration on train fire incidents. (The FRA Office of Railroad Safety is responsible for regulating safety throughout the railroad industry. One of its priorities is the safe handling of potentially hazardous materials.) In general, the frequency of incidence of fires for all train systems in the U.S. is extremely low, and there is no indication in the causation data that commodity fires (for any type of combustible commodity and not just coal) have any frequency of fire occurrence on trains. Coal is transported through many parts of the U.S. on a daily basis, and the statistical data tracked by the FRA demonstrates the overall safety associated with rail transport. Given the above, the fire risk and hazard to the public associated with the transport of coal in contained train cars is considered to be negligible.

The likelihood of a coal explosion on a rail car is even more remote. FRA data does not indicate any incidents of explosion on rail lines occurring in the last three years, with the last single year incident being 2011. Furthermore, this single incident is not likely related to coal because this explosion data covers all rail lines transporting all goods, including many other more dangerous goods that are explosive.) The properties of coal do not support the development of explosive conditions on the train cars. Coal dust of sufficient concentration would have to be generated and would not be expected to occur in sufficient quantities in a moving train. The "fines" or small particles of coal dust would settle towards the bottom of the car given the natural vibration and movement of the train. Therefore, given the nature and properties of coal and the published statistical data, the likelihood of a catastrophic explosion on a train is negligible, both qualitatively in the context of understanding the material characteristics, and quantitatively based on the FRA data.

The greatest potential risk associated with dust explosions will be during transfer operations at the port terminal itself. As outlined in the Jensen Hughes Technical Memorandum (Attachment 1 of the HDR Report), this is typical of many kinds of combustible commodities including many agricultural products. The hazards are well understood and will be mitigated through good design practices, operational controls, safety systems, and where appropriate through specialized design of the equipment to incorporate explosion venting (pressure relief in the event an explosion does occur).

Based on the above, the fire and explosion risk associated with the transport, containment of the coal does not pose a public safety risk.

c. **Are coal operations monitored by OSHA?**
Yes, OSHA rules and regulations will apply, but the TLS Terminal is a multi-commodity bulk terminal – not a coal operation. All TLS operations and personnel are subject to a full spectrum of laws, rules and regulations from the local to the federal level, which include OSHA.

d. **How can ILWU concerns be addressed or mitigated?**
We appreciate and recognize the positions expressed by multiple labor organizations at the September 21 informational hearing, both supportive of the project and those expressing potential concerns. As explained throughout this submittal and as is thoroughly documented throughout the administrative record related to the project, all aspects of operations at the Terminal and the project as a whole can and will be carried out in a manner that identifies and mitigates any potential health and safety issues. The record to date related to project construction affirms that all air quality and other mandates are being strictly adhered to and that requirements regarding local-hire man hours are being exceeded. We are confident that as construction moves forward and operations eventually begin, misunderstandings and misinformation on which previous concerns have been premised can and will be addressed to the satisfaction of all potential workers related to the project.

EXHIBIT 16-A

Peter Senez, Jensen Hughes Credentials

JENSEN HUGHES

PETER L. SENEZ, P.Eng.

Executive Vice-President – Canadian Operations

Experience: 22 Years
With Sereca, a JENSEN HUGHES Company: 12 Years

Education

B.Eng., Mechanical Engineering
Concordia University, 1993

M.Eng., Fire Protection Engineering
University of British Columbia,
1997

Ph.D. Mechanical Engineering (Fire)
in progress
University of Waterloo
2013 - present

Registered P.Eng.

- Alberta
- British Columbia
- Manitoba
- Ontario
- Saskatchewan

Registered FSE

- Singapore

Associations

Member, Society of Fire Protection Engineers (SFPE)

Member, International Association of Arson Investigators

Member, NFPA

Member, International Association of Fire Safety Science

Member, Institution of Fire Engineers

Contact

(604) 295-3420
psenez@sereca.com

Peter Senez is an experienced and well-respected authority in the field of fire engineering. Active in the fire industry for over 20 years, Mr. Senez has diverse and unique industry experience with expertise in fire engineering, building and fire code consulting, fire testing, risk and failure relative to fires and explosions. Relative to fire investigation, he has investigated and analyzed fires in vehicles, structures, heavy equipment, aircraft, boats, forests, marine complexes, commercial buildings and large industrial facilities. Peter practices internationally in both forensics and fire protection engineering design and includes work in the US, Canada, Hong Kong, Singapore, Malaysia, UAE, Saudi Arabia and Trinidad. He has testified as an expert in fire investigation, fire code compliance, and fire engineering and has completed over 1,000 fire investigations. He has also chaired and managed numerous significant and high profile large losses and is familiar with the complexities of analyzing sites, evaluating systems, and identifying modes of failure or potential mechanisms for causation.

PROFESSIONAL HIGHLIGHTS

Vice President, Canadian Operations, JENSEN HUGHES (formerly Sereca Consulting), Vancouver, BC, 2003–present. Responsible for Canadian operations, Peter is leading the expansion of the company to establish an unparalleled reach through Canada and internationally. Formerly the CEO of Sereca, which merged with JENSEN HUGHES in 2015, Peter has provided leadership in the growth and development of fire and forensic services and leads many large projects and forensic analyses.

Throughout his career he has focused on technically challenging and complex fire engineering problems servicing architects, insurers, developers, lawyers, owners, and manufacturers. He provides leadership in professional engineering services on large infrastructure and complex building projects and is often imbedded as the leader of the fire protection and life safety team. With a combined engineering and practical fire background, expertise has been developed in many aspects of mechanical and fire engineering, including mechanical systems, fire behavior, heat transfer, fire growth, combustion dynamics, sources of ignition, ventilation tenability, risk assessment and explosion dynamics.

Specific to the process industry, Peter has been involved in analyzing event causation, mitigation and risk assessments for a range of products and hazardous material processes, including wood processing, coal mining, lithium batteries, sulfur, gasoline, manufacturing, hydrogen, LPG, LNG, wheat and canola storage, sugar, and other materials and products that require safe handling practices and storage arrangements.

Senior Engineer, Fire Group, MacInnis Engineering Associates Ltd, Vancouver, BC, 1999-2003. Senior Engineer responsible for the technical investigation of fire and explosion incidents. Conducted fire and explosion investigations, including scene investigations, evaluation of fire spread mechanisms, establishment of causation, assessment of building design and the preparation of expert reports. Coordinated a series of full-scale fire tests on dwellings to evaluate different modes of fire behaviour with and without ignitable liquids. Used computer fire modeling to evaluate fire and smoke behaviour in buildings, and predict burn patterns and smoke detector response.

Fire Protection Engineer, Locke MacKinnon Domingo Gibson & Associates Ltd., Vancouver, BC, 1993-1999. Provided building and fire code consulting services to architects, engineers, developers, and legal firms. This included the evaluation of industrial manufacturing facilities and analysis of specialized fire protection systems and hazardous materials. Fire testing options and standards were reviewed for manufacturing clients, including room fire tests, fire-resistance tests, and small-scale testing procedures. Fire testing was coordinated with laboratories and the test results were analyzed to engineer product variations. Equivalencies were developed based on industry research and testing to meet the intent of prescriptive building and fire code requirements. Acceptance of equivalencies with authorities having jurisdiction was coordinated.

Fire Protection/Mechanical Consultant, Public Works Canada - Architectural & Engineering Services, Vancouver, BC, July–September 1993. Evaluated building plans for compliance with applicable codes and fire safety standards. Reviewed pier and wharf construction for small craft harbours and performed marine inspections. Developed a building upgrading plan. Conducted engineering work on strain gauges, non-destructive test methods, pumps, hydraulic calculations, and specification preparation.

Sergeant/Fire Inspector and Fire Fighter, Town of Otterburn Park, QC, Otterburn, Quebec, 1988-1993. Responded to fires, accidents, and other emergencies. Developed and implemented a fire prevention program for commercial establishments. Analyzed the water distribution network and made recommendations to improve its effectiveness.

PUBLICATIONS

Structural Exposure of Steel Frame in Large Fire Incident
Senez P, Calder K, Milford A., Coles A. Response of Structures Under Extreme Loading, Protect 2015, Lansing, MI, USA, Jun 28-30, 2015

Structural Fire Exposure of Transit Stations Relative to Vehicle Fires
Senez P, Calder K, Milford A., Coles A. Response of Structures Under Extreme Loading, Protect 2015, Lansing, MI, USA, Jun 28-30, 2015

Fire Loss Statistical Considerations in relating Failure and Building Damage to the Building Code Objectives
Senez P, Calder K, Li H. Interflam 13th International Fire Science and Engineering Conference, London, UK, June 2013

Alternative Solutions and Acceptable Risk – A Canadian Context
Senez P, Calder K, Coles A. Society of Fire Protection Engineers 9th International Conference on Performance-Based Codes and Fire Safety Design Methods, Hong Kong, June 2012

The Historical Basis for Determining Occupant Loads
Calder K, Locke H, Senez P. Society of Fire Protection Engineers 9th International Conference on Performance-Based Codes and Fire Safety Design Methods, Hong Kong, June 2012

Review of Proposed Building Code Changes to Permit 5/6 Storey Wood Frame Construction
Senez P, Calder K. Building and Safety Policy Branch, Office of Housing and Construction Standards, Government of British Columbia, November 2008

Experimental and Simulated Analysis of Room Fire Theory for Forensic Applications
Senez P, Calder K. Proceedings of the 9th International Fire and Materials Conference, San Francisco, CA, February 2005

Assessing the fire-resistance rating of tile-spaced concrete floor assemblies
Senez P, Locke H. Fire-Protection Engineering, pp. 25-28. Society of Fire Protection Engineers, 1999

A forensic analysis of a Montreal building fire
Senez P, Mehaffy J. Proceedings of the Third International Conference in Fire Research and Engineering, pp. 243-254. Society of Fire Protection Engineers, International Association of Fire Safety and Science, National Institute of Standards and Technology, 1999

Evaluating materials and fire protection systems using full-scale fire tests
Torvi D, Senez P et al. Proceedings of the Third International Conference on Fire Research and Engineering, pp. 363-374. Society of Fire Protection Engineers, International Association of Fire Safety and Science, National Institute of Standards and Technology, 1999

Investigating fires - An engineering approach
Senez P. Adjusters Quarterly, pp. 11-17. BC Insurance Adjusters Association, Vancouver, BC, 1999

Assessing the fire-resistance rating of tile-spaced concrete floor assemblies in the former Woodward's Department Store
Senez P. Proceedings of SFPE Technical Symposium on Fire-Resistance Ratings, Fairfax, VA, 1998

LECTURES & PRESENTATIONS

Electronic Data Available for Evidence in Fire Investigation
Engineering Evidence in Civil Litigation, The Continuing Legal Education Society of British Columbia, January 2014

Envisioning the Future of Fire Analysis for Design and Forensic Applications
Fire Chiefs' Association of British Columbia, June 2012

Fire Investigation – from Art to Science
National Justice Institute Science Seminar, Vancouver, BC, March 2012

Differences in Fire Behaviour where Accelerants are Used
Canadian Bar Association Hot Topics in Civil Litigation and Insurance Law , Banff, AB, October 2009

Integrated Risk
Red River Valley Mutual Insurance, Altona, MB, April 2008

Reverse Engineering – Applying Fire Science to the Analysis of Real Fires
Canadian Insurance Claims Managers Association Annual Seminar, Winnipeg, MB, April 2008

30-Storey Residential Care Facility Canadian Case Study
SFPE International Conference, Performance-Based Codes and Fire Safety Design Methods, Tokyo, Japan, June 2006

Redefining Concepts of Flashover Theory
Fire Prevention Officers' Association of BC, Annual Seminar, May 11, 2006

Applying Fire Theory to Burn Pattern Analysis and Origin Determination
Fire Prevention Officers' Association of BC, Annual Seminar, May 11, 2006

Flashover at 600°C – maybe but probably not!
Society of Fire Protection Engineers BC Chapter, May 30, 2005

Mock Trial: Expert Fire Cause and Origin Testimony
Singleton Urquhart Fire Litigation Group and the I.A.A.I B.C. Chapter 15, November 13, 2003

Fire Analysis for Insurance Claims
Huston Grant Adjusters, Kamloops BC, September 17, 2003

Methodology and Investigation Tools for Fire Analysis
The International Association of Arson Investigators, Saskatchewan Chapter, Regina, SK, September 10, 2003

Research in Fire Analysis & Computer Modelling
Society of Fire Protection Engineers, St. Laurent Chapter, Montreal, QC, June 14, 2002

Analysis of Fire Patterns and Computer Fire Modelling
Alberta Association of Special Investigators, Red Deer, AB, May 23, 2002

Computer Modelling as a Tool in Fire Investigation
Fire Prevention Officers Association of BC, Nanaimo, BC, May 9, 2002

The Anatomy of Fire, Fire Investigation Seminar
The International Association of Arson Investigators, Chapter 15, Burnaby, BC, April 3-5, 2002

Room Fires and Computer Modelling
Society of Fire Protection Engineers, BC Chapter, Vancouver, BC, March 5, 2002

The New Technology - Recent Developments in Fire Investigation and Litigation
Singleton Urquhart Fire Seminar, Vancouver, BC, March 2001

Forensic Fire Engineering
Canadian Insurance Claims Managers Association, Monthly Meeting, Vancouver, BC, January 2001

Commissioning of Fire and Life Safety Systems
Building Officials Association of British Columbia, Education Seminar, Richmond, BC, December 1999

A Forensic Look at the Future
Forensic Fire Engineering Seminar Presentation sponsored by Shumka Craig & Moore Adjusters Canada Ltd. and Lindsay Kenney, Barristers & Solicitors, Vancouver, BC, November 1999

A Forensic Analysis of a Montreal Building Fire
Third International Conference in Fire Research and Engineering, Chicago, IL, October 1999

Full-Scale Fire Test Method to Evaluate Materials and Fire Safety Systems
Poster Presentation for the Third International Conference on Fire Research and Engineering, Chicago, IL, October 1999

Assessing the Fire-Resistance Rating of Tile-Spaced Concrete Floor Assemblies in the former Woodward's Department Store
SFPE Technical Symposium on Fire-Resistance Ratings, Fairfax, VA, April 1998

A Forensic Analysis of a Montreal Building Fire
Society of Fire Protection Engineers, BC Chapter, Vancouver, BC, March 1998

CCIG/OBOT/TLS RESPONSE TO CITY 9/28/15 QUESTION #17

17) Would BAAQMD:

a. **Assist in evaluating TLS' proposed Basis of Design/cars?**
b. **Evaluate existing mitigation measures and recommend any additional measures if needed?**
c. **Provide data on the health and/or safety impacts of coal at the Richmond Port, and other Ports, such as Stockton and/or Long Beach?**
d. **Provide data on the impacts of coal that is already transported through Oakland.**

We defer to BAAQMD's response to each of these questions.

Regarding question 17(b), in accordance with City of Oakland Ordinance No. 13183 C.M.S. and the project's Final and Corrected SCA/MMRP document, quarterly meetings for stakeholder review of air quality and trucking plans were held on the following dates, with participation from the City, Developer, BAAQMD, Sierra Club, and community groups (see Exhibit 17-A):

- October 16, 2013
- September 25, 2013
- January 15, 2014
- March 3, 2014
- April 23, 2014
- September 19, 2014
- October 15, 2014

ATTACHMENT A

KEYSER MARSTON ASSOCIATES
ADVISORS IN PUBLIC/PRIVATE REAL ESTATE DEVELOPMENT

ADVISORS IN:
REAL ESTATE
REDEVELOPMENT
AFFORDABLE HOUSING
ECONOMIC DEVELOPMENT

SAN FRANCISCO
A. JERRY KEYSER
TIMOTHY C. KELLY
KATE EARLE FUNK
DEBBIE M. KIRN
REED T. KAWAHARA
DAVID DONZIMA

LOS ANGELES
KATHLEEN H. HIMP
JAMES A. RABE
GREGORY D. SOO-HOO
KEVIN E. ENGSTROM
JULIE L. ROMEY

SAN DIEGO
GERALD M. TRIMBLE
PAUL C. MARKA

MEMORANDUM

To: Pat Cashman
City of Oakland

From: Keyser Marston Associates, Inc.

Date: December 7, 2012

Subject: Property Tax and Economic Impacts - Oakland Army Base

In accordance with your request, Keyser Marston Associates, Inc. (KMA) has evaluated the annual property tax revenues and economic impacts to be generated by the Army Base Gateway Redevelopment Project set forth in the Lease Disposition and Development Agreement (LDDA), effective December 4, 2012 for the Oakland Global Trade and Industry Center project ("Oakland Global" or "Project"), which includes the City Gateway area and Port railyard. The purpose of the analysis is to provide information to the Oversight Board of the Successor Agency to the Oakland Redevelopment Agency regarding the tax revenues and economic benefits that will be generated by the Project.

I. Approach and Key Assumptions

Development Scenarios – KMA has analyzed the property tax and economic benefits that would be generated upon the build-out of a range of development scenarios. Scenario 1 represents the City development program provided by the LDDA, which includes the Gateway development area and the Port Railyard. Scenario 2 represents an expansion to be implemented by the Port, which is enabled by Scenario 1 and could only occur if Scenario 1 infrastructure improvements are developed first. Scenario 3 represents the status quo, or a "no project" alternative.

Scenario 1 – Completion of the Project (the City Gateway and the Port Railyard) in accordance with the LDDA;

Scenario 2 – Completion of the entire Oakland Global program, including the Port's Logistic area and the Seventh Street grade separation improvements. As noted

above, the completion of Scenario 1 infrastructure improvements is a necessary precondition for the feasibility of Scenario 2. Although the City does not control the Port's development under this Scenario, it is part of the California Transportation Commission (CTC) grant supporting Scenario 1 and is considered in order to provide a full picture of the taxable income potential for the Project.

Scenario 3 – A third scenario is maintaining the status quo on the LDDA development area with no project moving forward. This scenario assumes retention of existing tenants which are predominately storage and trucking related and generate a nominal amount of property taxes.

Table 1 provides additional details regarding new development under Scenarios 1 and 2.

While a performance schedule has been established for the commencement of the various components of infrastructure improvements, a schedule for the completion of specific vertical improvements has not yet been established other than the requirement that all vertical improvements are to be complete by no later than June 30, 2020, consistent with the CTC grant requirements. The schedule will be driven by market conditions. Given this consideration, the full amount of property tax revenues and permanent job-creation will not be fully realized until after the project is fully completed, which may not occur until 2020. It is anticipated that some development will be complete by 2015, and will gradually come on-line through this five-year period, which will provide a corresponding gradual increase in property tax revenues to the taxing agencies and permanent jobs to the region.

Distribution of Property Taxes – For purposes of this analysis, it has been assumed that property tax revenues resulting from the 1% base property tax levy are distributed to affected taxing agencies in accordance with the "normal" process for allocation of property tax and not subject to the flow of funds that applies for dissolved redevelopment agencies. It is assumed that property tax funds will not be deposited into the Redevelopment Property Tax Trust Fund, will be outside the purview of the Successor Agency/redevelopment dissolution process, and are not encumbered by any debt of the former Redevelopment Agency. We recommend that the Alameda County Auditor Controller be consulted to verify this assumption. Alternatively, if property taxes are deposited into the Redevelopment Property Tax Trust Fund of the former Redevelopment Agency, the taxing agencies would instead receive a combination of pass-through payments and a proportionate share of unencumbered "residual" funds.

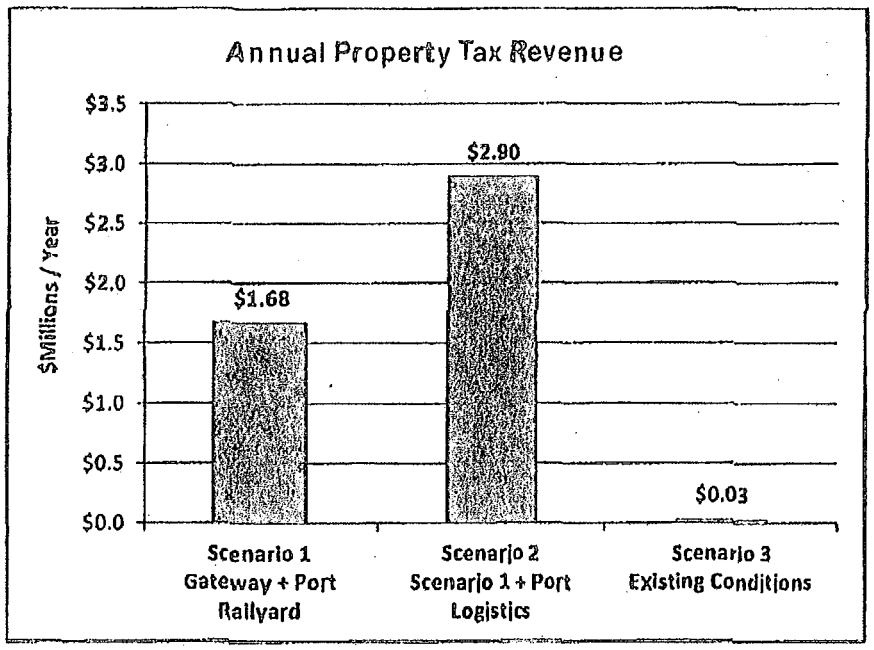
Assessed Value of Oakland Global – For purposes of this analysis, the assessed property values have conservatively been estimated, consisting of the sum of direct

vertical construction costs and an estimated land value. The land value estimate is after planned horizontal improvements are in place; therefore, horizontal improvement costs (remediation, demolition, utilities, and backbone infrastructure) are not additive to the estimated assessed value. The Railyard itself may be assessed if, for example, it is leased to a private sector railroad. However, railroads are assessed by the State Board of Equalization with all of the assets of the railroad bundled together. The State generally assesses railroads using an income approach applied on a State-wide level. As a result, it is unclear whether any increase in local property tax revenue would be generated from the Railyard, so none has been assumed in the analysis.

II. Preliminary Findings and Conclusions

A. Annual Property Tax Revenues to Taxing Agencies

Upon completion and reflection on the tax rolls, Scenario 1 (Gateway and Port Railyard) is estimated to annually generate approximately $1.7 million of local property taxes. With the addition of the Port Logistics development, Scenario 2 is estimated to generate approximately 70% more annual property tax revenue, totaling $2.9 million per year. Currently the City Oakland Global LDDA development site on the former Oakland Army Base generates only a nominal amount of property tax (approximately $0.03 million per year).



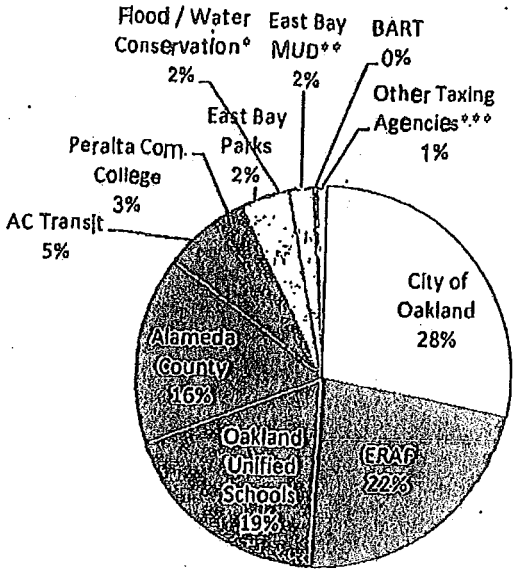
As illustrated below and on Table 2, the taxing agencies that receive the largest portion of property taxes are: 1) the City of Oakland (28%); 2) the Oakland Unified School District (19%), 3) Alameda County (16%) and 4) AC Transit (5%). Under the full build-out program (Scenario 2), annual property taxes to these taxing agencies are estimated as follows:

- City of Oakland: $815,000
- Oakland Unified: $541,000
- Alameda County: $464,000
- AC Transit: $134,000

The estimated distribution of property taxes by taxing agency for each scenario is summarized in the table pie chart below (percentage shares constant in all scenarios).

Annual Projected Property Tax Revenue by Taxing Agency

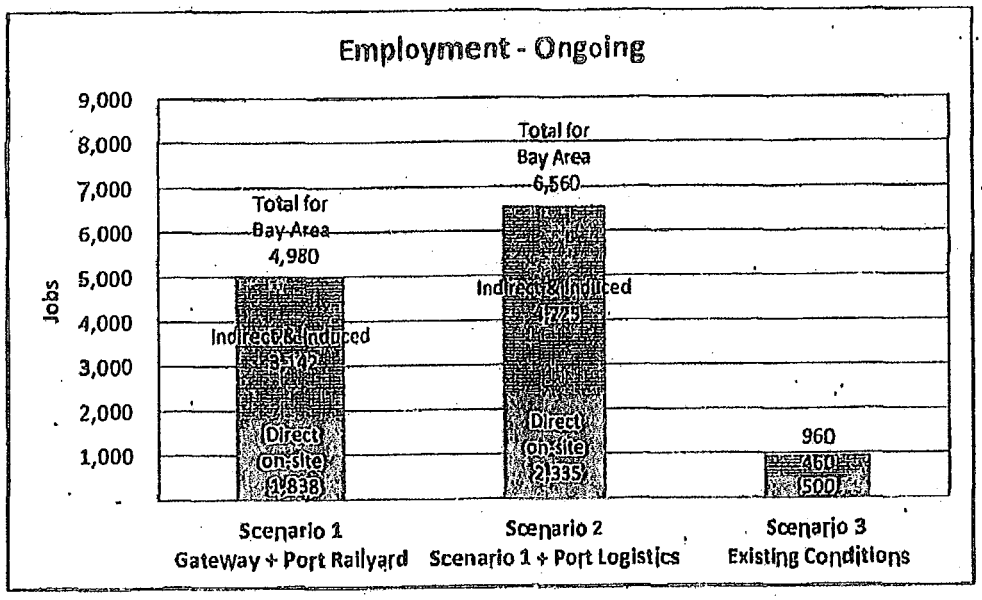
	Scenario 1 Gateway + Port Railyard	Scenario 2 Scenario 1 + Port Logistics	Scenario 3 Existing Conditions
City of Oakland	$ 471,200	$ 814,600	$ 9,100
Oakland Unified Schools	$ 312,800	$ 540,800	$ 6,000
Alameda County	$ 268,200	$ 463,700	$ 5,200
AC Transit	$ 77,600	$ 134,100	$ 1,500
Peralta Com. College	$ 44,200	$ 76,400	$ 900
East Bay Parks	$ 40,500	$ 70,100	$ 800
Flood & Water Conserv.*	$ 31,100	$ 53,800	$ 600
East Bay MUD**	$ 33,000	$ 57,100	$ 700
BART	$ 9,000	$ 15,600	$ 200
Other Taxing Agencies***	$ 13,200	$ 22,900	$ 200
ERAF	$ 374,500	$ 647,500	$ 7,200
Total	$ 1,675,300	$ 2,896,600	$ 32,400



* Includes Flood Control Zone 12.
** Includes Special District #1
*** Includes BAAQMD, County Superintendent of Schools, Mosquito Abatement, and Oakland Zoo.

B. Ongoing Jobs to be Created by Oakland Global

As indicated in the Master Plan, the TIGER grant application, and other pertinent documents, Oakland Global will be a key job-generator for Oakland. Once completed and fully operational, Oakland Global is estimated to generate between 1,840 (Scenario 1) and 2,335 (Scenario 2) full-time permanent on-site jobs. These jobs will be held by residents of Oakland and other communities in the Bay Area. The on-site operations will indirectly support an additional 3,140 to 4,225 full-time equivalent jobs throughout the region resulting in a total employment impact for the region of between 4,980 and 6,560 jobs.



Employment created by Oakland Global (Scenarios 1 and 2) significantly exceeds the approximately 500 permanent jobs associated with existing uses[1] which are estimated to indirectly support an additional 460 jobs throughout the Bay Area for a total of 960 jobs (Scenario 3).

[1] Does not include temporary jobs associated with construction staging for the Bay Bridge replacement project.

Table 5
Projection of Economic Benefits from Construction - Gateway and Port Railyard and Port Logistics Areas
Property Tax and Economic Benefits Analysis
Oakland Army Base

Estimated Construction Period Economic Impacts				Direct Construction Impact	MSA Multiplier[2]	Indirect & Induced Impact	Total Impact
Scenario 1 (Gateway + Port Railyard)							
Economic Output (Costs)		millions		$456 [1]		$435	$891
Construction Trades				$422	1.9458	$399	$822
Professional Services				$33	2.0625	$36	$69
Construction Payroll		millions		$98		$79	$177
Construction Trades	20%		[3]	$84	1.7996	$68	$152
Professional Services	40%		[3]	$13	1.8547	$11	$25
Construction Employment - One-Year's Duration				1,523		1,540	3,063
Construction Trades	$61,100	avg. wage	[4]	1,382	1.9617	1,329	2,712
Professional Services	$95,000	avg. wage	[4]	141	2.4978	211	352
Scenario 2 (Scenario 1 + Port Logistics)							
Economic Output (Costs)		millions		$803 [1]		$766	$1,569
Construction Trades				$740	1.9458	$700	$1,440
Professional Services				$63	2.0625	$67	$129
Construction Payroll		millions		$173		$140	$313
Construction Trades	20%		[3]	$148	1.7996	$118	$266
Professional Services	40%			$25	1.8547	$21	$46
Construction Employment - One Year's Duration				2,686		2,724	5,410
Construction Trades	$61,100	avg. wage	[4]	2,422	1.9617	2,329	4,751
Professional Services	$95,000	avg. wage	[4]	264	2.4978	395	658

Notes:

[1] Reflects development cost estimates contained in the "Oakland Global Trade Industry center Master Plan."

[2] Bureau of Economic Analysis RIMS II multipliers for the San Francisco/Oakland/Fremont MSA.

[3] Based on the 2007 Economic Census. Ratio of net value of construction work and professional services to gross payroll for industrial building construction contractors and architectural and engineering services.

[4] Per California Employment Development Department data on average pay for construction and professional service workers in Alameda County.

Sources: Bureau of Economic Analysis, Oakland Army Base, RIMS II multipliers.

Prepared by: Keyser Marston Associates, Inc.
Filename: L:\17\17019\023\004\Benefits analysis 9-13-12; 9/13/2012; dk

Table 6
Assessed Property Value - City Gateway and Port Logistics Properties
Property Tax and Economic Benefits Analysis
Oakland Army Base

	City Gateway Property + Port Railyard - Scenario 1							
					Scenario 1		Scenario 2	Scenario 3
Est. Assessed Value[1]	West Gateway	Central Gateway	North Gateway	East Gateway	Gateway + Port Railyard	Port Logistics	Scenario 1 + Port Logistics	Existing Conditions
Base Bldg.	$15,000,000	$25,499,436	$36,000,000	$20,144,640	$96,644,000	$40,476,000	$137,120,000	
Site Work	$0	$6,444,000	$0	$6,048,000	$12,492,000	$14,662,000	$27,154,000	
Tenant Improvement Allowance	$839,561	$2,501,015	$0	$2,212,800	$5,553,000	$4,414,000	$9,967,000	
Acquisition	$0	$552,690	$0	$0	$553,000	$0	$553,000	
Land Value (@$8/sf of land)	$5,694,504	$19,285,464	$8,854,704	$10,797,520	$44,632,000	$58,159,000	$102,791,000	actual 12-13 AV
Personal Property (@$5/sf gba)	$732,300	$2,685,245	$2,039,935	$2,212,800	$7,670,000	$4,414,000	$12,084,000	Per Assessor
Estimated Assessed Value	$22,266,365	$56,967,850	$46,894,639	$41,415,760	$167,544,614	$122,125,000	$289,669,000	$3,236,000
Per SF of GBA								
Base Bldg.	$102.42	$47.48	$88.24	$45.52	$63.00	$45.85	$56.73	
Site Work	$0.00	$12.00	$0.00	$13.67	$8.14	$16.61	$11.23	
TIs	$5.73	$4.66	$0.00	$5.00	$3.62	$5.00	$4.12	
Acquisition	$0.00	$1.03	$0.00	$0.00	$0.36	$0.00	$0.23	
Land Value (@$8/sf of land)	$38.88	$35.91	$21.70	$24.40	$29.09	$65.87	$42.53	
Personal Property (@$5/sf gba)	$5.00	$5.00	$5.00	$5.00	$5.00	$5.00	$5.00	
Total Assessed Value / sf gba	$152.03	$106.08	$114.94	$93.58	$109.22	$138.33	$119.85	
Land Area	711,813	2,410,683	1,106,838	1,349,690	5,579,024	7,269,918	12,848,942	
Bldg. Area	146,460	537,049	407,987	442,560	1,534,056	882,881	2,416,937	

[1] Assessed value estimates are based on the construction budget for vertical improvements contained in the "Oakland Global Trade and Industry Master Plan" and summarized on Table 1. This projection does not include an assessed value for the horizontal improvements, including the port railyard improvements.

Prepared by: Keyser Marston Associates, Inc.
Filename: L:\17\17019\023\004\Benefits analysis 9-13-12; 9/13/2012; dk

Table 7

Estimated Development Costs Oakland Global[1]
Property Tax and Economic Benefits Analysis
Oakland Army Base

	City Gateway Planning Areas						Port Planning Areas				Scenario 1	Scenario 2
	1	2	3	4	5	6	7	8	9	10	11	12
	CW1	CE1 &2, CC1,4,5	CE3,CC2,CC 3	CC6 - 9	CN1, CN2	Gateway Subtotal	Port Railyard	PL 1 - 9 Transload	PL 1 - 9 warehouse	Port Subtotal (inc. 7th st)	Columns 6, and 7	Columns 6 + 10
Land SF						5,579,024	2,900,201			7,269,918	8,479,225	12,648,942
Gross Building Area	146,460	347,000	595,763	36,846	407,987	1,534,056				882,881	1,534,056	2,416,937
Remediation						$5,700,000	$3,425,464	$2,274,536		$5,700,000	$9,125,464	$11,400,000
Horizontal Costs												
Direct Costs						$150,843,068	$125,523,137			$362,371,625	$276,366,205	$513,214,693
Professional Services						$15,838,522	$13,179,929			$38,049,021	$29,018,451	$53,667,543
Contingency and Escalation						$37,673,705	$31,224,000			$90,019,832	$68,897,705	$127,693,537
General Contractor Costs						$12,067,445	$10,041,851			$28,989,730	$22,109,296	$41,057,175
Other Soft Costs						$12,488,047	$9,752,545			$27,543,087	$22,240,592	$40,031,134
Subtotal Horizontal						$228,910,787	$189,721,462			$546,973,295	$418,632,249	$775,884,082
Vertical Development Costs												
Predevelopment Costs		$1,127,750	$1,280,890			$2,408,640	$0	$1,323,660	$1,022,542	$2,346,202	$2,408,640	$4,754,842
Arch. & Stmctural		$520,500	$744,704			$1,265,204	$0	$610,920	$594,501	$1,205,421	$1,265,204	$2,470,625
Civil Engineering		$225,550	$268,093			$493,643	$0	$264,732	$214,020	$478,752	$493,643	$972,395
Bldg. Permit Fees		$326,490	$875,772			$1,802,262	$0	$1,087,438	$699,133	$1,786,571	$1,802,262	$3,588,833
Utility Fees		$347,000	$297,882			$644,882	$0	$407,280	$237,801	$645,081	$644,882	$1,289,963
Jobs/Hsg. Fee		$1,265,856	$2,445,011			$3,710,667	$0	$1,485,757	$1,951,867	$3,437,624	$3,710,667	$7,148,491
Environmental		$13,880	$11,915			$25,795	$0	$16,291	$9,512	$25,803	$25,795	$51,598
Dev. Fee		$1,080,905	$1,021,734			$2,102,639	$0	$1,268,677	$815,656	$2,084,333	$2,102,539	$4,166,972
Title		$164,825	$162,048			$326,873	$0	$193,458	$129,363	$322,S21	$326,873	$649,694
Transfer Tax		$15,268	$16,383			$31,651	$0	$17,920	$13,079	$30,999	$31,651	$62,650
Legal		$133,800	$119,153			$257,953	$0	$162,912	$95,120	$258,032	$257,953	$515,985
Con. Ins.		$329,650	$324,095			$653,745	$0	$386,916	$258,727	$645,643	$653,745	$1,299,388
Possessory Int. Tax		$723,820	$735,023			$1,458,843	$0	$849,561	$586,773	$1,436,334	$1,458,843	$2,895,177
Op. Exp.		$166,560	$214,475			$381,035	$0	$195,494	$171,216	$356,710	$381,035	$747,745
Dev. Cany		$2,491,460	$2,073,255			$4,564,715	$0	$2,924,270	$1,655,091	$4,579,361	$4,564,715	$9,144,076
Base Bldg.	$15,000,000	$16,656,000	$26,213,572	$2,774,504	$36,000,000	$96,644,076	$0	$19,549,440	$20,926,444	$40,475,884	$96,644,076	$137,119,960
Site Work		$12,492,000				$12,492,000	$0	$14,662,080		$14,662,080	$12,492,000	$27,154,080
Tis	$839,561	$1,735,000	$2,978,815			$5,553,376	$0	$2,036,400	$2,376,005	$4,414,405	$5,553,376	$9,967,781
Acquisition				$552,690		$552,690	$0	$0	$0	$0	$552,690	$552,690
Subtotal, Vertical	$15,839,561	$40,421,314	$39,782,820	$3,327,194	$36,000,000	$135,370,889	$0	$47,443,206	$31,758,850	$79,202,056	$135,370,889	$214,572,945
Total Project Costs						$369,981,676	$193,146,926			$631,875,351	$563,126,602	$1,001,857,027
Costs Included for Economic Impact Estimates[2]						$303,563,927	$152,170,381			$498,951,152	$455,734,308	$802,515,079

[1] Development cost estimates reflect construction budget presented in the "Oakland Global Trade and Industry Center Master Plan".
[2] To provide a conservative analysis, selected soft cost / contingency line items have been excluded for purposes of economic impact estimates as they may not represent local expenditures within the Bay Area economy.

Prepared by: Keyser Marston Associates, Inc.
Filename: L:\17\17019\023\004\Benefits analysis 9-13-12; 9/13/2012; dk

Table 8
Ongoing Full-Time Employment from Operations - Gateway and Port Logistics Properties
Property Tax and Economic Benefits Analysis
Oakland Army Base

I. Direct Ongoing Jobs	Employment Density[1]	Scenario 1 Gateway + Port Railyard	Scenario 2 Scenario 1 + Port Logistics	Scenario 3 Existing Conditions[3]
R&D	2.50	0	0	
Bulk Warehouse, West Gateway	0.80	117	117	
Transload Warehouse, Gateway and Port	0.80	754	1,461	
Truck Services, Gateway	0.80	30	30	
Port Railyard Terminal[1]		401	401	
Recycling, North Gateway	0.80	326	326	
Total Direct On-going Full Time Equivalent Jobs		1,628	2,335	500
II. Indirect and Induced Jobs - San Francisco-Oakland-Fremont MSA		2,946	4,224	460
III. Total Jobs - San Francisco-Oakland-Fremont MSA		4,574	6,559	960
Multiplier[2]		2.809	2.809	1.926

[1] Represent number of on-going full time equivalent jobs per 1,000 square feet of gross building area.
These job generation factors reflect the factors and the rail employment estimates in the "2012 Oakland Army Base Project Initial Study/Addendum" prepared by LSA in May 2012.

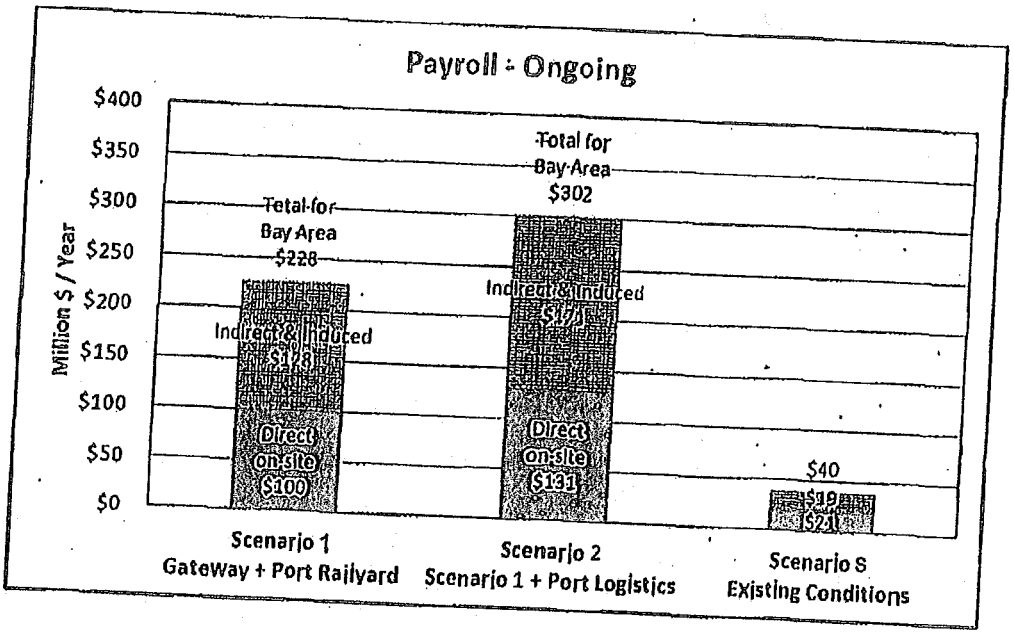
[2] Weighted average of RIMS II multipliers for San Francisco- Oakland-Fremont MSA, weighted 50% rail transportation and 50% warehouse and storage.
For existing uses, multipliers are based on a weighted average of 70% warehousing and storage and 30% truck transportation which represent the largest share of overall existing employment although other uses exist such as the Oakland Film Center.

[3] Jobs for Scenario 3 (existing conditions) Per "2012 Oakland Army Base Project Initial Study/Addendum" prepared by LSA in May 2012."
Excludes temporary jobs associated with Bay Bridge construction staging / lay down area.

Prepared by: Keyser Marston Associates, Inc.
Filename: L:\17\17019\023\004\Benefits analysis 9-13-12; 9/13/2012; dk

C. Ongoing Employee Income to be Created by Oakland Global

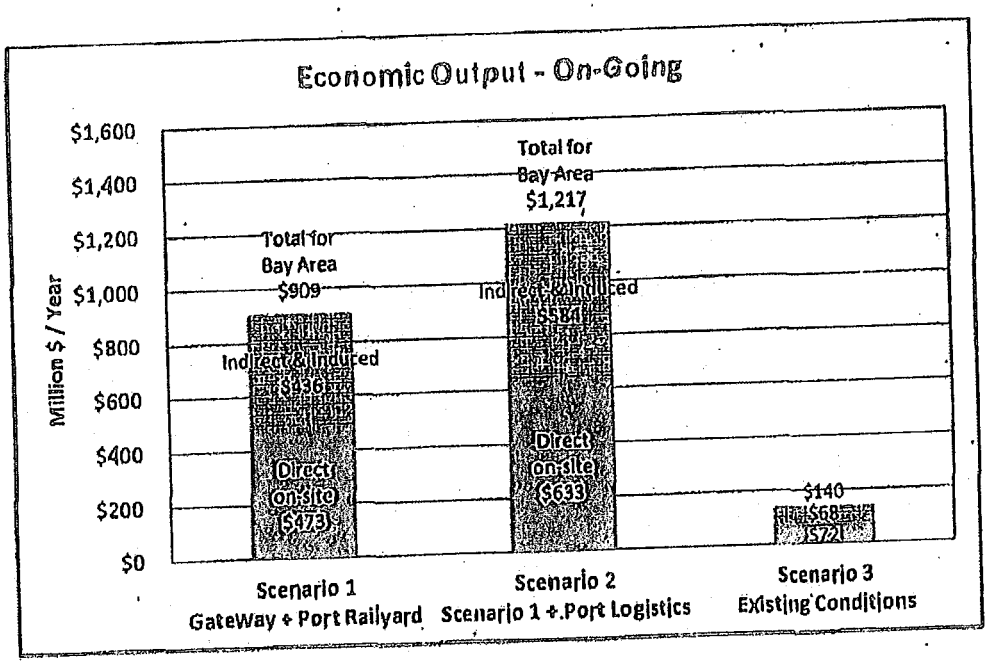
Annual direct payroll from on-site jobs in Oakland will total approximately $100 million to $130 million. Including indirect and induced employment throughout the region, Oakland Global will generate a total of approximately $230 million to $300 million of employee income.



Estimated income created by Oakland Global (Scenarios 1 and 2) significantly exceeds the existing $21 million in on-site employee income and $40 million in income inclusive of indirect and induced employment throughout the region (Scenario 3).

D. Ongoing Output/Gross Receipts of Oakland Global Businesses

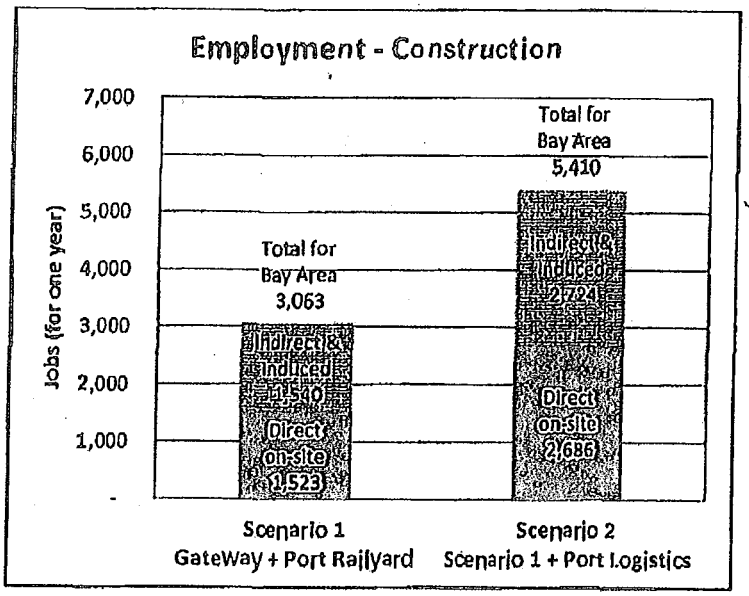
Based on regional statistics for rail transportation and warehouse industries, it is estimated that on-site Oakland Global businesses will directly generate from $470 million to $630 million in annual gross receipts. These gross receipts will stimulate economic output throughout the region. The total impact on regional output is estimated to range from $900 million to $1.2 billion per year.



Estimated gross receipts for Oakland Global businesses (Scenarios 1 and 2) significantly exceed the existing $72 million in direct on-site gross receipts and $140 million inclusive of indirect and induced economic activity throughout the region (Scenario 3).

E. Construction Jobs Created by Oakland Global

As detailed in the Master Plan, development costs for Scenario 1 are estimated to total $560 million, which is estimated to support approximately 1,520 direct construction jobs on-site in the City of Oakland[2] for a full year. Development costs for Scenario 2 are estimated to reach $1 billion, which is estimated to support approximately 2,690 direct on-site construction jobs in the City of Oakland for a full year.[3] Through purchases of supplies from other businesses and the expenditures of construction employees, it is estimated that, regionally, the construction of Oakland Global will generate between 3,060 and 5,410 jobs for a full-year. While the construction impacts are not permanent, they will bring a significant boost to Oakland and the region.

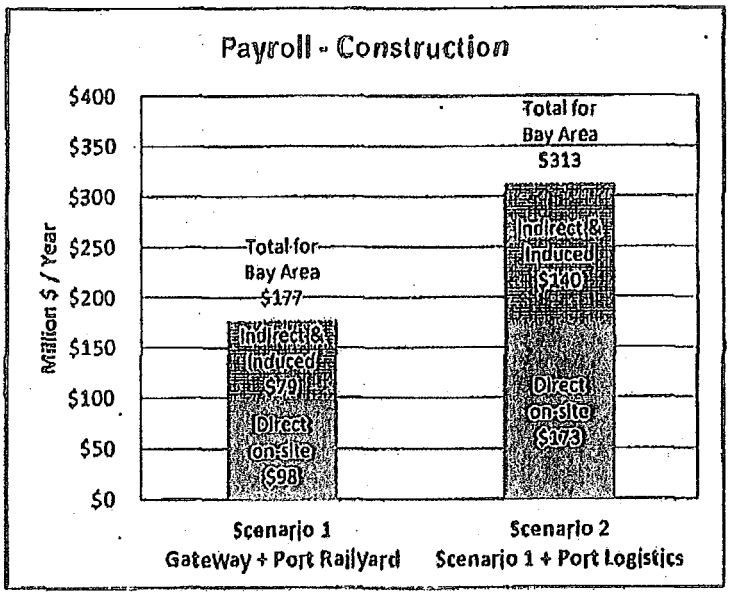


No construction jobs are created under Scenario 3, which would retain existing uses and does not involve new construction.

[2] The majority of the estimated direct construction-related jobs would be on on-site in Oakland (90% or more). The remaining approximately 10% of jobs for construction related professional services may be located in Oakland and/or other cities throughout the Bay Area.
[3] Ibid.

F. Income Created by Construction of Oakland Global

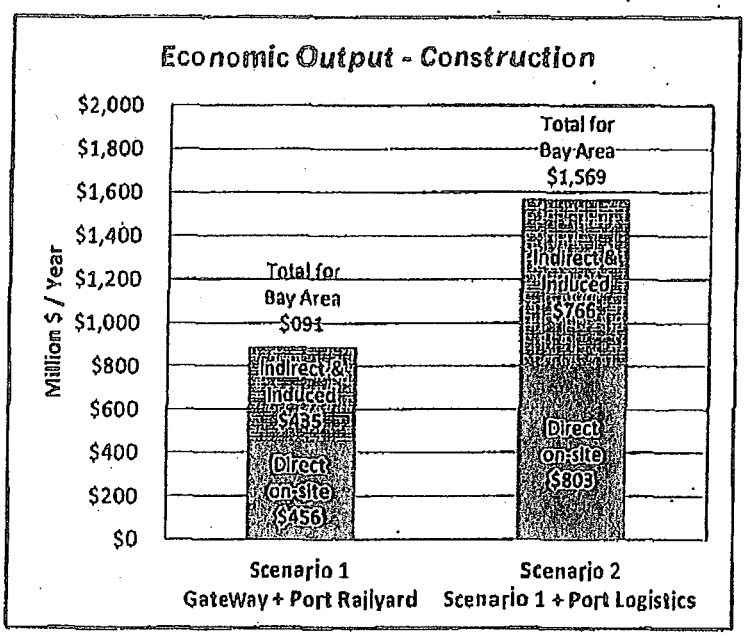
Direct employee payroll for the 1,520 to 2,690 on-site construction jobs in Oakland is estimated to range from $98 million to $173 million. The weighted average annual wage of construction and professional services workers who would be employed in developing Oakland Global currently approximates $64,000. Including indirect and induced impacts throughout the region, the construction of Oakland Global is estimated to generate a total of $177 million to $313 million in employee payroll.



No construction-related payroll is generated under Scenario 3 which would retain existing uses and does not involve new construction.

G. Output/Gross Receipts Created by Construction of Oakland Global

Construction firms engaged in development of Oakland Global are estimated to support other businesses throughout the region through the purchases of construction materials and the expenditures of construction employees. Total regional output is estimated to range from $890 million to $1.6 billion.



No construction-related increase in gross receipts or economic output is generated under Scenario 3 which would retain existing uses and does not involve new construction.

III. List of Tables

The calculations made to prepare the property tax and economic impact estimates summarized in this memorandum are presented in the following technical tables:

Table 1: Summary of Proposed Vertical Development Scenarios
Table 2: Distribution of Annual Property Tax Revenue by Taxing Agency
Table 3: Summary of Ongoing and Construction Impacts
Table 4: Economic Benefits from On-Going Operations
Table 5: Economic Benefits from Construction
Table 6: Assessed Property Value
Table 7: Development Costs
Table 8: Ongoing Full Time Employment from Operations

Table 1
Summary of Proposed Vertical Development Scenarios - Gateway, Port Railyard and Port Logistics Areas
Property Tax and Economic Benefits Analysis
Oakland Army Base

	Scenario 1 Gateway + Port Railyard	Scenario 2 Scenario 1 + Port Logistics
Private Vertical Dvlpmnt Prgrm - GBA[1]		
City West Gateway - Option B		
R&D	0	0
Bulk Warehouse	146,460	146,460
City Central Gateway		
Transload Warehouse	500,203	500,203
Truck Services	36,846	36,846
City North Gateway		
Recycling Facility	407,160	407,160
Truck Services	827	827
City East Gateway		
Transload Warehouse	442,560	442,560
Total City Area	1,534,056	1,534,056
Port Area - GBA		
Port Railyard	included	included
Port Logistics Transload Warehouse	0	882,881
Total Port Area	0	882,881
Total Vertical Building Area - GBA	1,534,056	2,416,937
Distribution by Land Use		
R&D	0	0
Bulk Warehouse	146,460	146,460
Transload Warehouse	942,763	1,825,644
Truck Services	37,673	37,673
Recycling	407,160	407,160
Total Vertical GBA	1,534,056	2,416,937
Land Area		
City Area	5,579,024	5,579,024
Port Area	2,900,201	7,269,918
Total, SF	8,479,225	12,848,942
Total, Acres	195	295

[1] Source of building areas is the "Oakland Global Trade and Industry Center Master Plan."

Prepared by: Keyser Marston Associates, Inc.
Filename: L:\17\17019\023\004\Benefits analysis 9-13-12; 9/13/2012; dk

Table 2
Distribution of Annual Property Tax Revenue by Taxing Agency - City Gateway and Port Logistics Properties
Property Tax and Economic Benefits Analysis
Oakland Army Base

		City Gateway Property + Port Railyard - Scenario 1							
		West Gateway	Central Gateway	North Gateway	East Gateway	Scenario 1 Gateway + Port Railyard	Port Logistics	Scenario 2 Scenario 1 + Port Logistics	Scenario 3 Existing Conditions
Assessed Value Est. ($Millions) [1]		$22.3	$57.0	$46.9	$41.4	$167.5	$122.1	$289.7	$3.2
Base Annual Property Tax	1.00%	$222,700	$569,700	$469,000	$414,200	$1,675,500	$1,221,300	$2,896,700	$32,400
Distribution by Taxing Agency - TRA 17041									
City of Oakland	28.12%	$62,600	$160,200	$131,900	$116,500	$471,200	$343,400	$814,600	$9,100
ERAF	22.35%	$49,800	$127,300	$104,800	$92,600	$374,500	$273,000	$647,500	$7,200
Oakland Unified School District	18.67%	$41,600	$106,400	$87,600	$77,300	$312,800	$228,000	$540,800	$6,000
Alameda County	16.01%	$35,700	$91,200	$75,100	$66,300	$268,200	$195,500	$463,700	$5,200
AC Transit	4.63%	$10,300	$26,400	$21,700	$19,200	$77,600	$56,500	$134,100	$1,500
Peralta Community College District	2.64%	$5,900	$15,000	$12,400	$10,900	$44,200	$32,200	$76,400	$900
East Bay Parks	2.42%	$5,400	$13,800	$11,300	$10,000	$40,500	$29,600	$70,100	$800
Flood Control Zone 12	1.75%	$3,900	$10,000	$8,200	$7,200	$29,300	$21,400	$50,700	$600
County Flood Control and Water Conservation	0.11%	$200	$600	$500	$500	$1,800	$1,300	$3,100	$0
East Bay MUD	1.45%	$3,200	$8,300	$6,800	$6,000	$24,300	$17,700	$42,000	$500
EBMUD Special District #1	0.52%	$1,200	$3,000	$2,400	$2,200	$8,700	$6,400	$15,100	$200
BART	0.54%	$1,200	$3,100	$2,500	$2,200	$9,000	$6,600	$15,600	$200
Air Quality Management District	0.19%	$400	$1,100	$900	$800	$3,200	$2,300	$5,500	$100
County Institution Pupils	0.15%	$300	$900	$700	$600	$2,500	$1,800	$4,300	$0
County Superintendent Service	0.09%	$200	$500	$400	$400	$1,500	$1,100	$2,600	$0
County Superintendent Capital	0.07%	$200	$400	$300	$300	$1,200	$900	$2,100	$0
County Juvenile Hall Education	0.03%	$100	$200	$100	$100	$500	$400	$900	$0
Mosquito Abatement	0.08%	$200	$500	$400	$300	$1,300	$1,000	$2,300	$0
Oakland Zoo	0.18%	$400	$1,000	$800	$700	$3,000	$2,200	$5,200	$100
Total	100.00%	$222,800	$569,900	$468,800	$414,100	$1,675,300	$1,221,300	$2,896,600	$32,400

[1] Estimates are presented on Table 6. Existing conditions represents actual FY 12-13 AV per Alameda County Assessor.

Prepared by: Keyser Marston Associates, Inc.
Filename: L:\17\17019\023\004\Benefits analysis 9-13-12; 9/13/2012; dk

Table 3
Summary of Impacts - Gateway, Port Railyards, and Port Logistics Areas
Property Tax and Economic Benefits Analysis
Oakland Army Base

	Scenario 1 Gateway + Port Railyard	Scenario 2 Scenario 1 + Port Logistics	Scenario 3 Existing Conditions	
Local On-Going Annual Property Tax Revenues[1]	$1,675,300	$2,896,600	$32,400	
On-Going Economic Benefits / Operations[2]				
Direct Impact - On-site Impacts				
Economic Output	$473	$633	$72	Million/Yr
Payroll	$100	$131	$21	Million/Yr
Employment	1,838	2,335	500	jobs
Direct, Indirect, Induced Impact - SF/Oak/Fremont MSA				
Economic Output	$909	$1,217	$140	Million/Yr
Payroll	$228	$302	$40	Million/Yr
Employment	4,980	6,560	960	jobs
Construction Economic Benefits[3]				
Direct Impact - On-site Impacts				
Economic Output	$456	$803	N/A	Million
Payroll	$98	$173	N/A	Million
Employment[4]	1,523	2,686	N/A	jobs
Direct, Indirect, Induced Impact - SF/Oak/Fremont MSA				
Economic Output	$891	$1,569	N/A	Million
Payroll	$177	$313	N/A	Million
Employment[4]	3,063	5,410	N/A	jobs

[1] Estimates are presented on Table 6. Distribution among taxing agencies is presented on Table 2.
[2] Estimates are presented on Table 4.
[3] Estimates are presented on Table 5.
[4] Estimates are presented on Table 5. Employment impacts represent equivalent full-time jobs over a 1-year construction period.

Prepared by: Keyser Marston Associates, Inc.
Filename: L:\17\17019\023\004\Benefits analysis 9-13-12; 9/13/2012; dk

Table 4
Summary of Economic Benefits from On-Going Operations - Gateway, Railyard, and Port Logistics
Property Tax and Economic Benefits Analysis
Oakland Army Base

Estimated Economic Impacts from On-Going Operations	Annual Direct Impact	Bay Area Multiplier[1]	Indirect & Induced Impact	Total Annual Impact
Economic Output / Gross Sales				
Scenario 1				
New	$441,800,000 [3]	1.9214 [1]	$407,200,000	$849,000,000
Retained Existing (Port Property) [4]	$30,700,000	1.9536 [1]	$29,100,000	$59,700,000
Total	$472,500,000		$436,300,000	$908,700,000
Scenario 2	$633,400,000 [3]	1.9214 [1]	$583,600,000	$1,217,000,000
Scenario 3	$71,900,000 [3]	1.9536 [1]	$68,100,000	$140,000,000
Employment				
Scenario 1				
New	1,628 [2]	2.8094 [1]	2,942	4,570
Retained Existing (Port Property) [4]	210	1.9257 [1]	200	410
Total	1,838		3,142	4,980
Scenario 2	2,335 [2]	2.8094 [1]	4,225	6,560
Scenario 3	500 [2]	1.9257 [1]	460	960
Earnings / Payroll				
Scenario 1				
New	$91,200,000 [3]	2.3093 [1]	$119,500,000	$210,700,000 [1]
Retained Existing (Port Property) [4]	$8,900,000	1.8951 [1]	$8,000,000	$16,900,000
Total	$100,100,000		$127,500,000	$227,600,000
Scenario 2	$130,800,000 [3]	2.3093 [1]	$171,300,000	$302,100,000 [1]
Scenario 3	$20,900,000 [3]	1.8951 [1]	$18,800,000	$39,700,000 [1]

Notes:

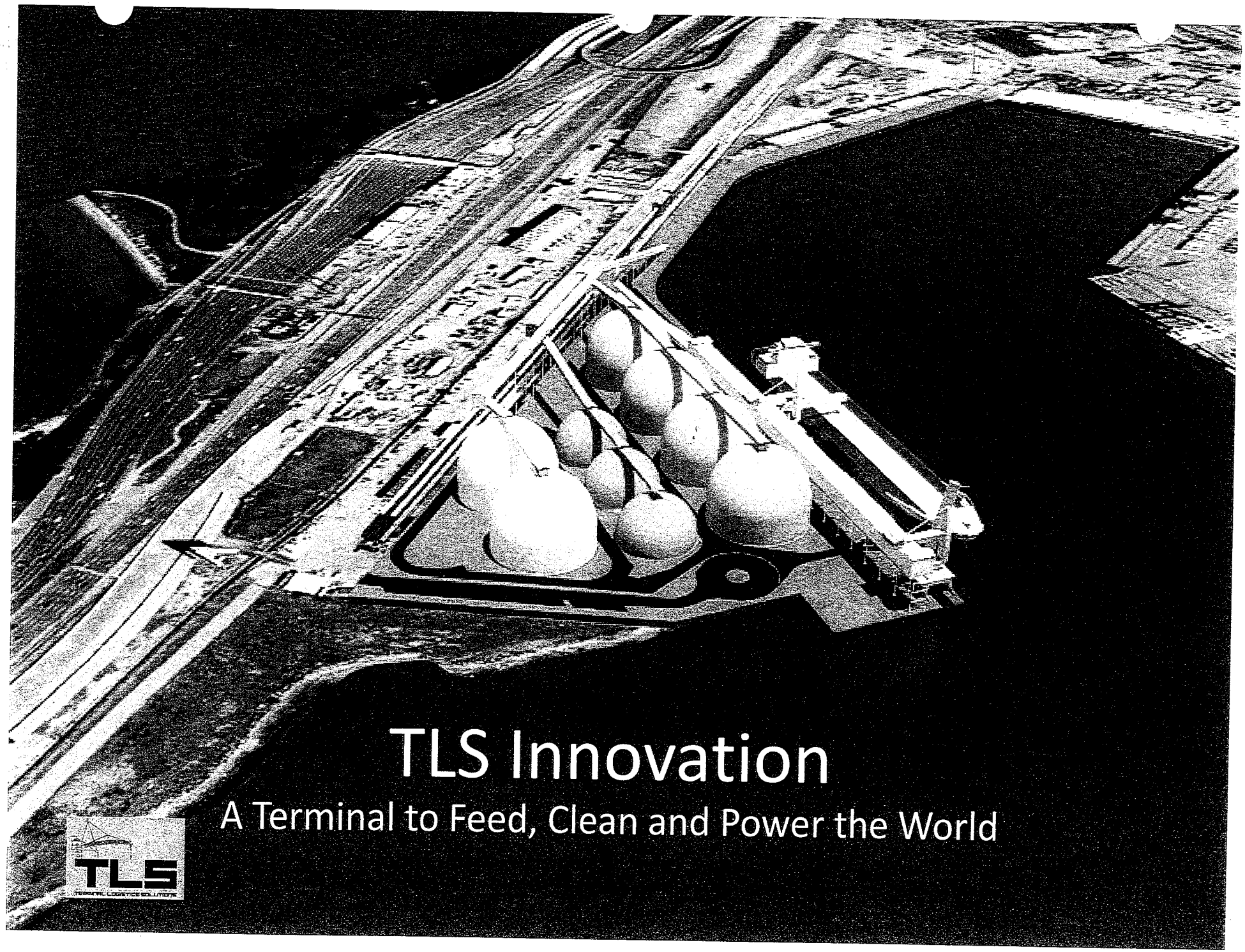
[1] Bureau of Economic Analysis RIMS II multipliers for the Bay Area (11-County Combined Statistical Area) applicable to rail transportation and warehousing/storage industries.
Multiplier for existing uses are for warehousing/storage and truck transportation industries.
Output, Indirect/induced employment, and total payroll figures have been estimated by applying the RIMS II multipliers to the direct job counts.

[2] Please see Table 8 for calculation of jobs.

[3] Estimate derived using RIMS II multipliers based upon estimated direct employment.

[4] Approximately 65% of existing jobs are located on the Port Parcels of which two thirds are assumed to be retained in Scenario 1 (Gateway + Port Railyard only).

Prepared by: Keyser Marston Associates, Inc.
Filename: L:\17\17019\023\004\Benefits analysis 9-13-12; 9/13/2012; dk



TLS Innovation

A Terminal to Feed, Clean and Power the World

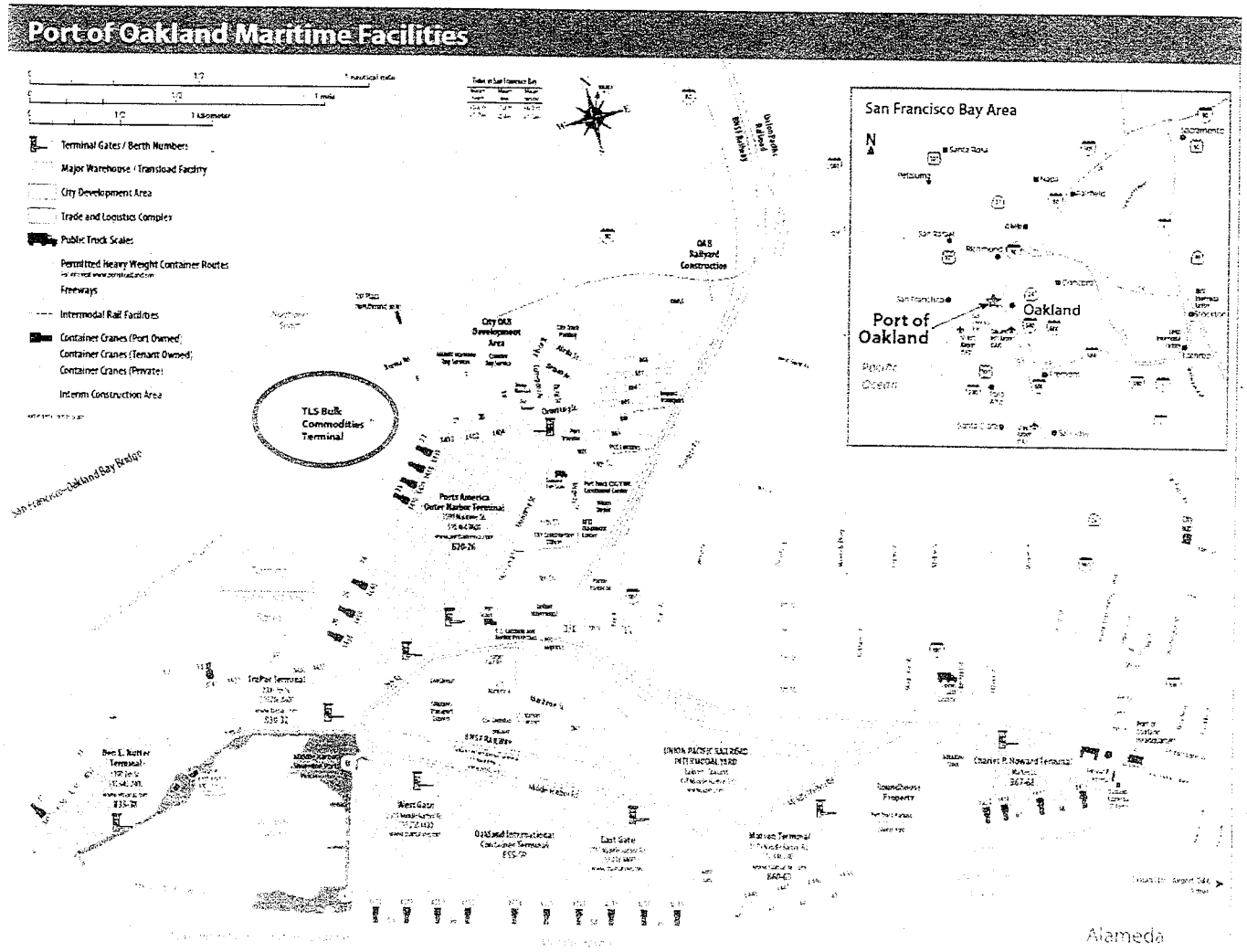
TLS

Terminal Logistics Solutions (TLS)

Terminal Logistics Solutions (TLS) is an Oakland, CA based company who will provide world class terminal and stevedoring services at the TLS Oakland Bulk Terminal for a variety of bulk agriculture and mineral commodities, utilizing state-of-the art environmental practices and procedures.

TLS

The Terminal Is Located Within The City of Oakland Army Base Redevelopment Project



TLS

What Are "Bulk" Commodities?

Agriculture Bulk commodities are things like:

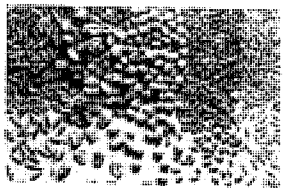
- Corn,
- Soybeans,
- Grains,
- Cattle feed, etc.

Other Bulk Commodities may include:

- Iron ore used to make steel
- Soda ash used to make certain types of glass
- Borax used for various industrial products and household cleaning purposes, and
- Coal used to power more than 40% of the world's electricity needs.

TLS

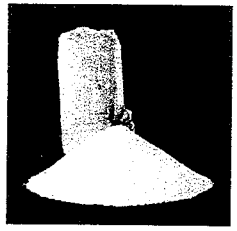
TLS Will Handle Multiple Commodities



Agriculture

FEED the world

- wheat
- flax
- corn
- dry beans
- oats
- barley
- rye
- soybeans
- grain



Soda Ash

CLEAN the world

- manufacturing of glass,
- Detergents,
- and other industrial products.

Bituminous Coal

ENERGIZE the world

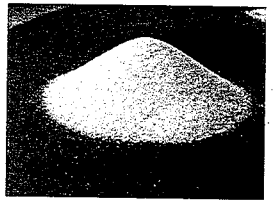
Coal is a fossil fuel and is far more plentiful than oil or gas.

- Electricity, Power
- Fuel for cars, trucks, ships, rail road
- Fuel for steel production
- Cement production
- Cell phone parts
- numerous other industrial activities

Iron Ore

INDUSTRIAL

- making steel
- 98% of the mined iron ore is used to make steel



Sodium Sulfate

CLEANING
MANUFACTURING

- manufacturing of detergents
- processing of paper pulp

Borax

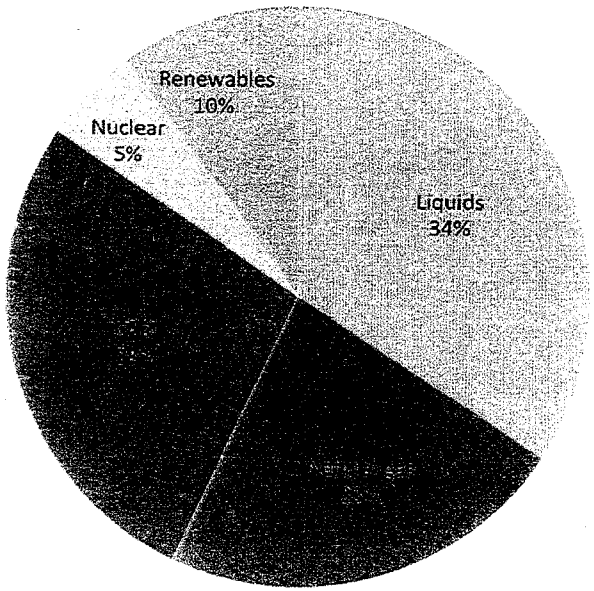
CLEANING
MANUFACTURING
INDUSTRIAL

- Cosmetics
- detergents
- enamel glazes
- making of buffer solutions in biochemistry
- a wide variety of uses

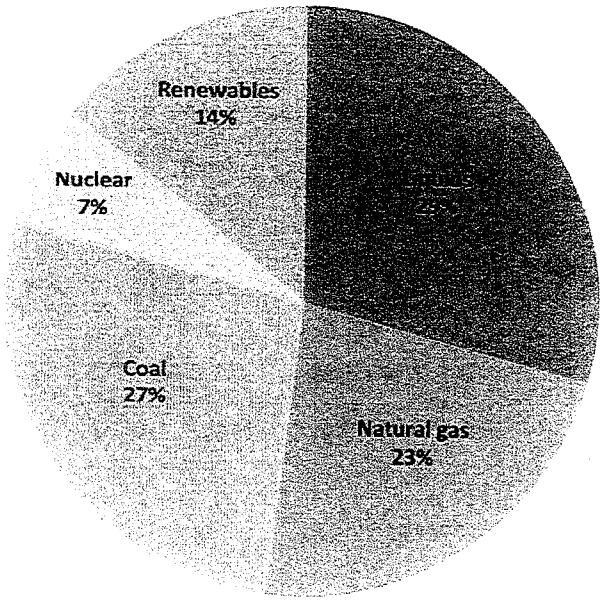
TLS

World Energy Consumption

World Energy Consumption in 2008 (504.7 quadrillion Btu)



World Energy Consumption in 2035 (769.8 quadrillion Btu)



Source: Penn State Dept. of Energy & Mineral Sciences - https://www.e-education.psu.edu/egee102/node/1929

TLS

TLS Is Committed To Community Health & Safety

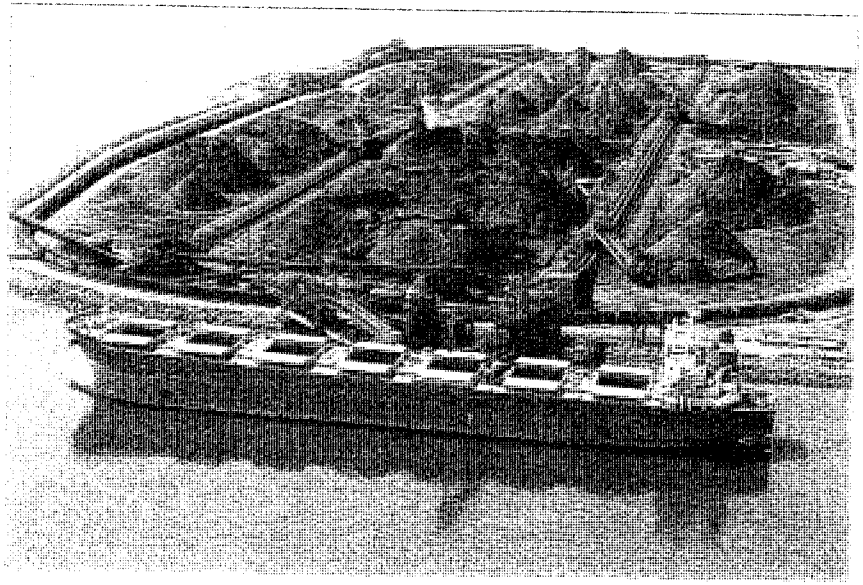
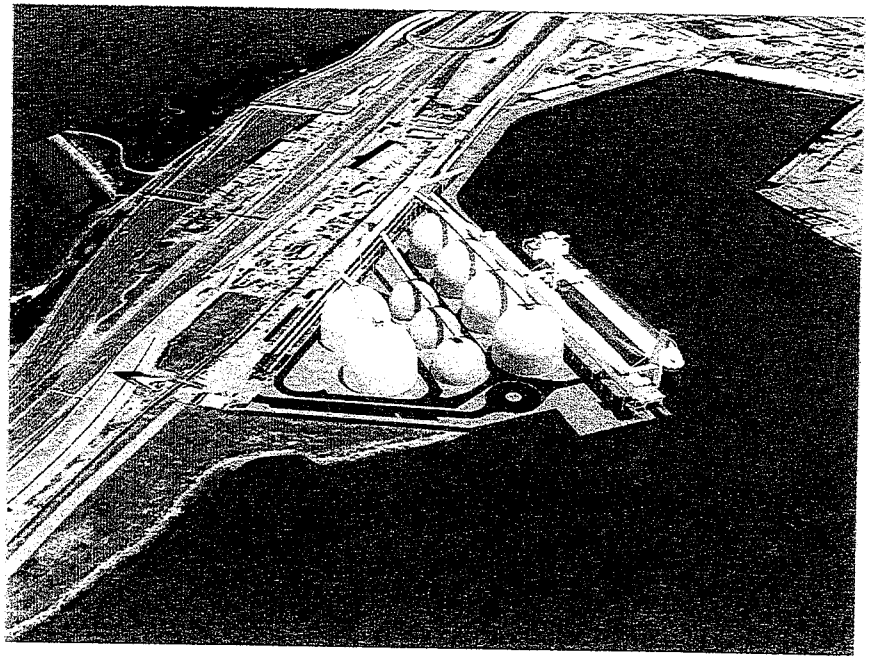
TLS is committed to helping build a healthy and vibrant Oakland.

It is designing a state-of-the-art facility that will eliminate from its operation ANYTHING that may be viewed as harmful to the health and safety of residents or as having a negative environmental impact on the community.

The following are just a few of the things being done to help insure public health and safety...

TLS

Bulk Commodities Terminal Design & Operations

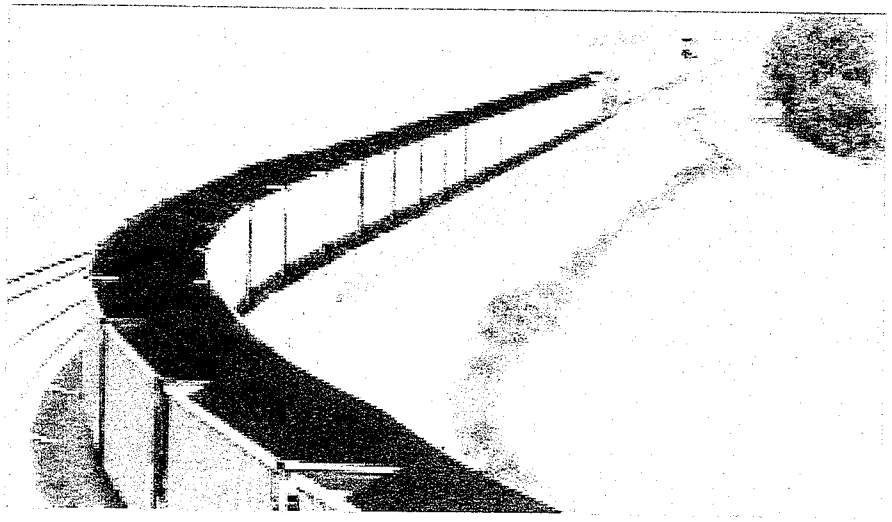
Current Process	TLS Innovation
	

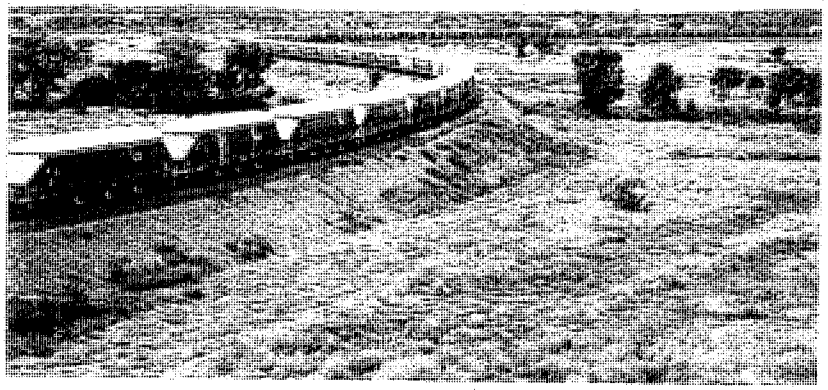
TLS

Commodity Transport

Current Process

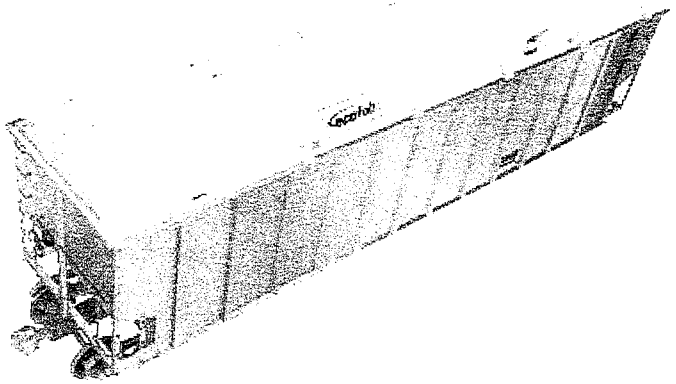
TLS Innovation





TLS

Covered Rail Cars

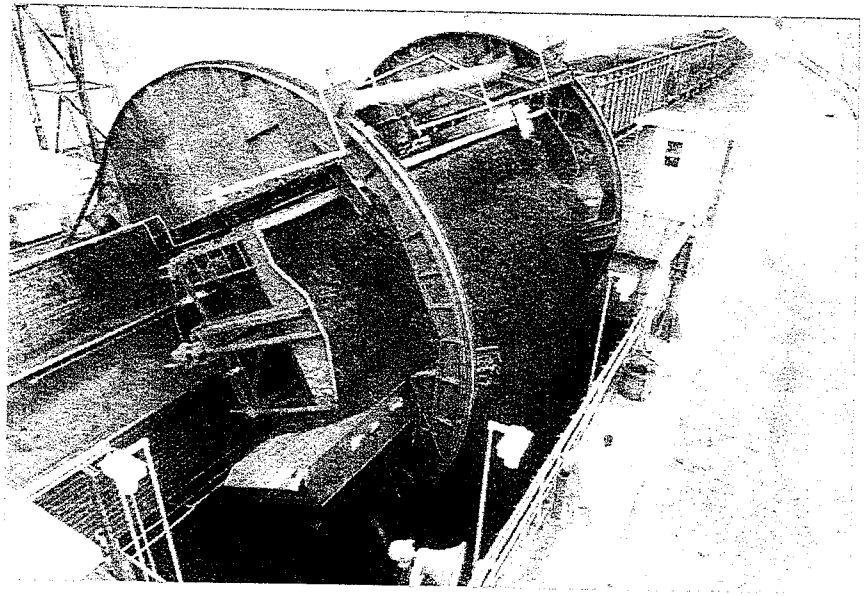
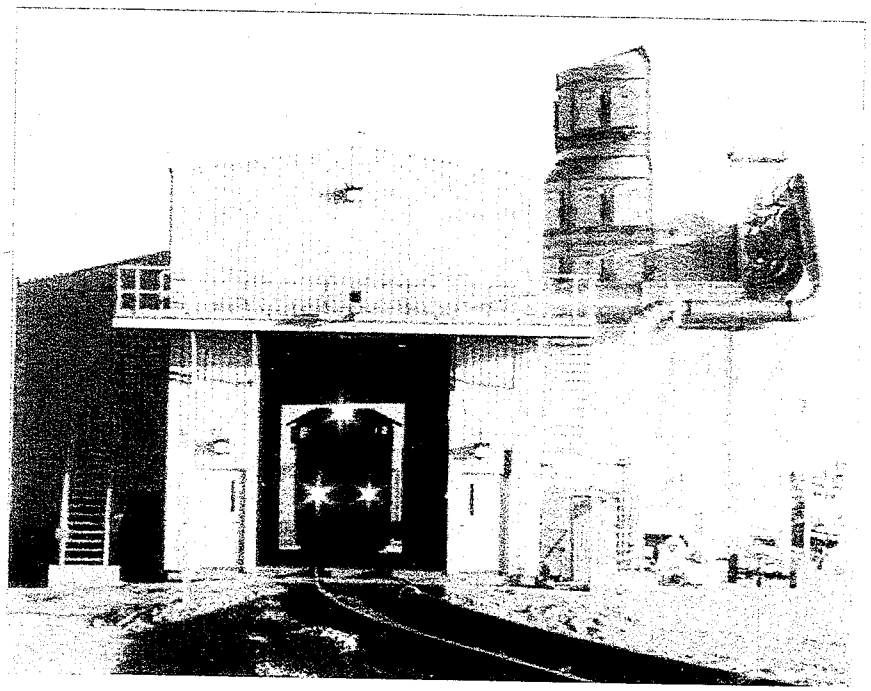


Source: www.ecofab.com

- In use for over 40 years
- U.S., Canada, South America, Australia
- Materials & Commodities:
  - Copper Concentrate
  - Lead Concentrate
  - Nickel Concentrate
  - Silver Concentrate
  - Zinc Concentrate
  - Low Level Radioactive Waste
  - Low Level Radioactive Soils
  - Steel Castings
  - Phosphate
  - Wood Chips
  - Grain

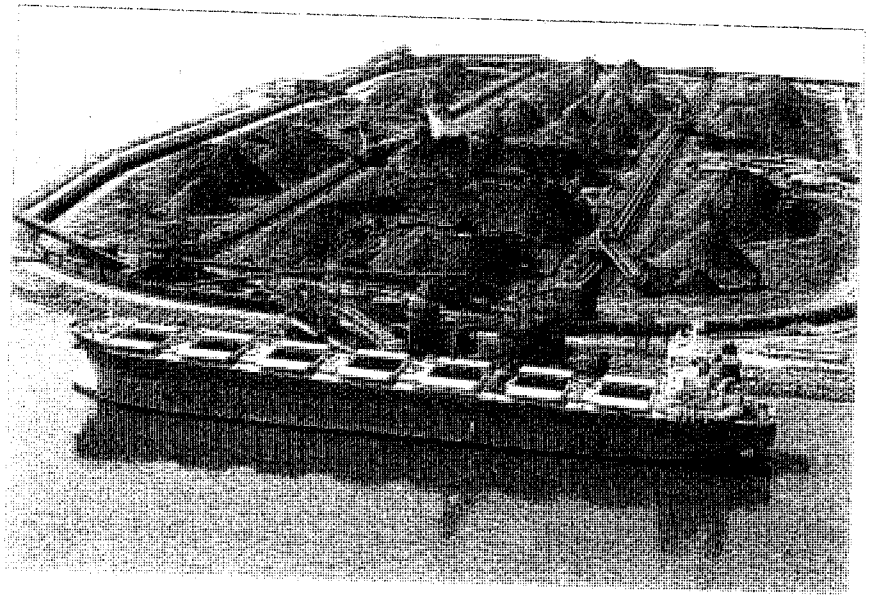
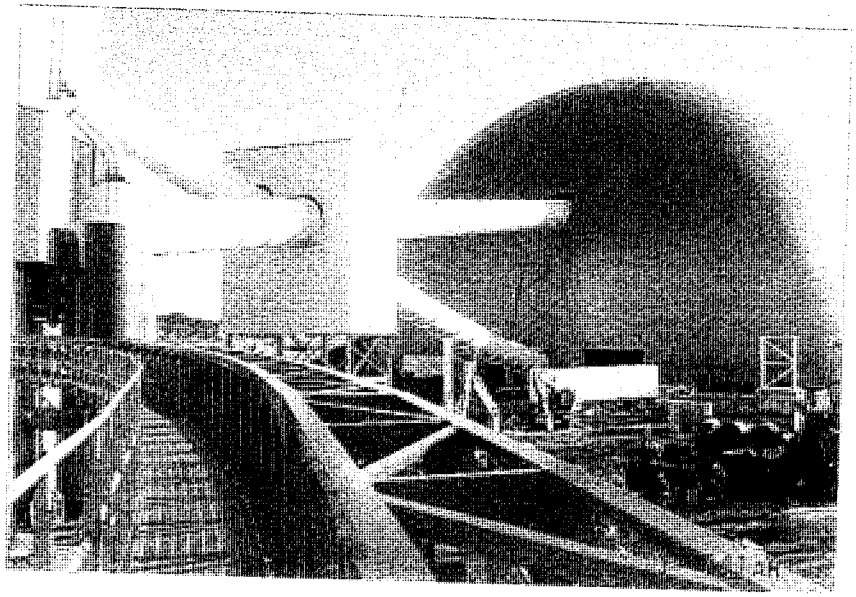
TLS

Commodity Unloading

Current Process	TLS Innovation
	

TLS

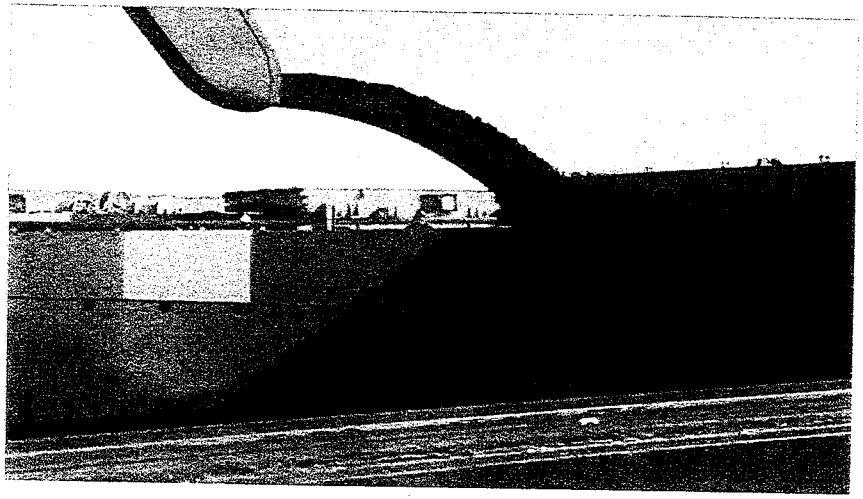
Commodities Conveyance and Storage

Current Process	TLS Innovation
	

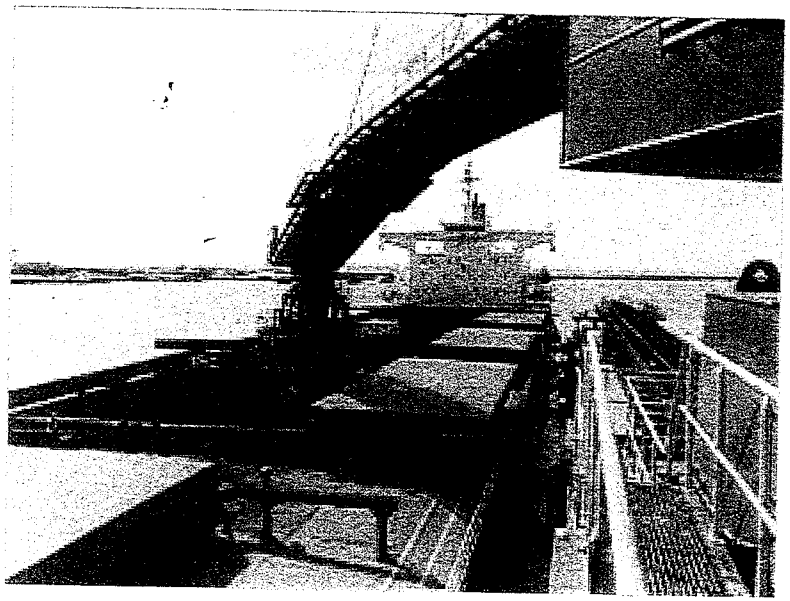
TLS

Commodities Ship Loading

Current Process



TLS Innovation

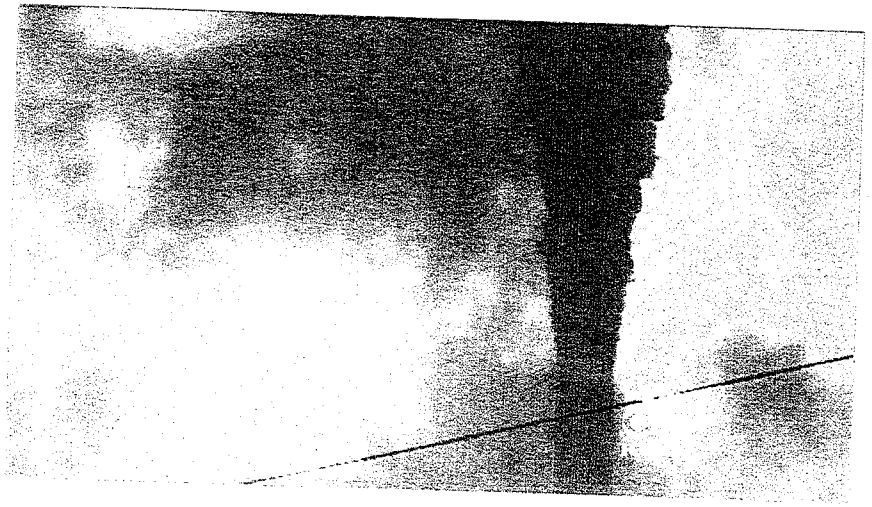


TLS

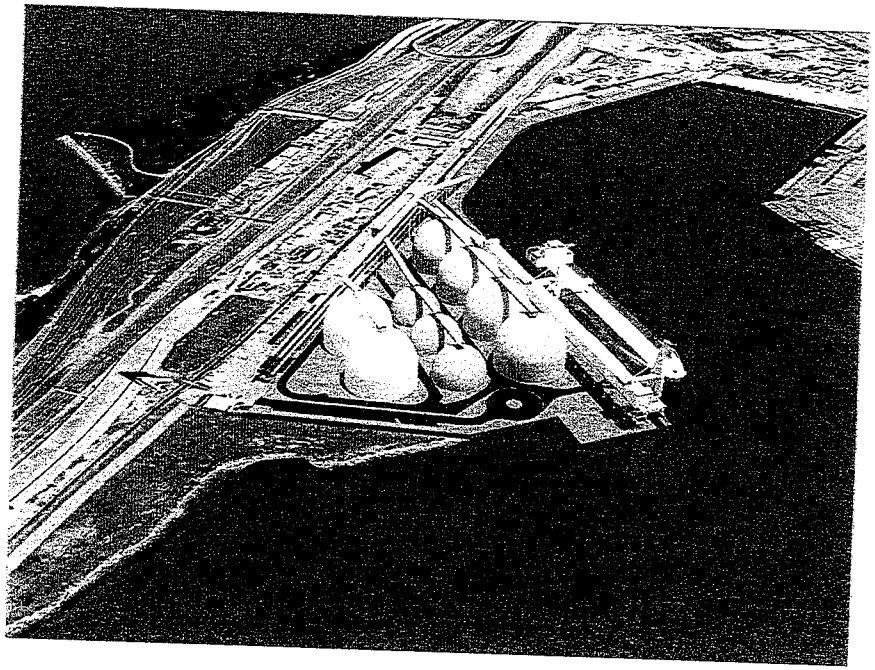
Not a Coal Burning Plant

KPIX 5 July 1, 2015 Reporting

False representation



TLS Design



TLS Community Investment Commitment

- TLS will develop and grow strategic partnerships with community organizations to make positive meaningful impact by committing funds in:
  - Community health and safety
  - Economic Development
  - Youth development

- TLS will commit community funds based upon the annual throughput of the terminal during the entire term of TLS operations

TLS

Why Is It Important For Oakland?

WHY is this project so important for Oakland and WHY is it especially important to the West Oakland community?

TLS

Snapshot of TLS Direct Job Categories

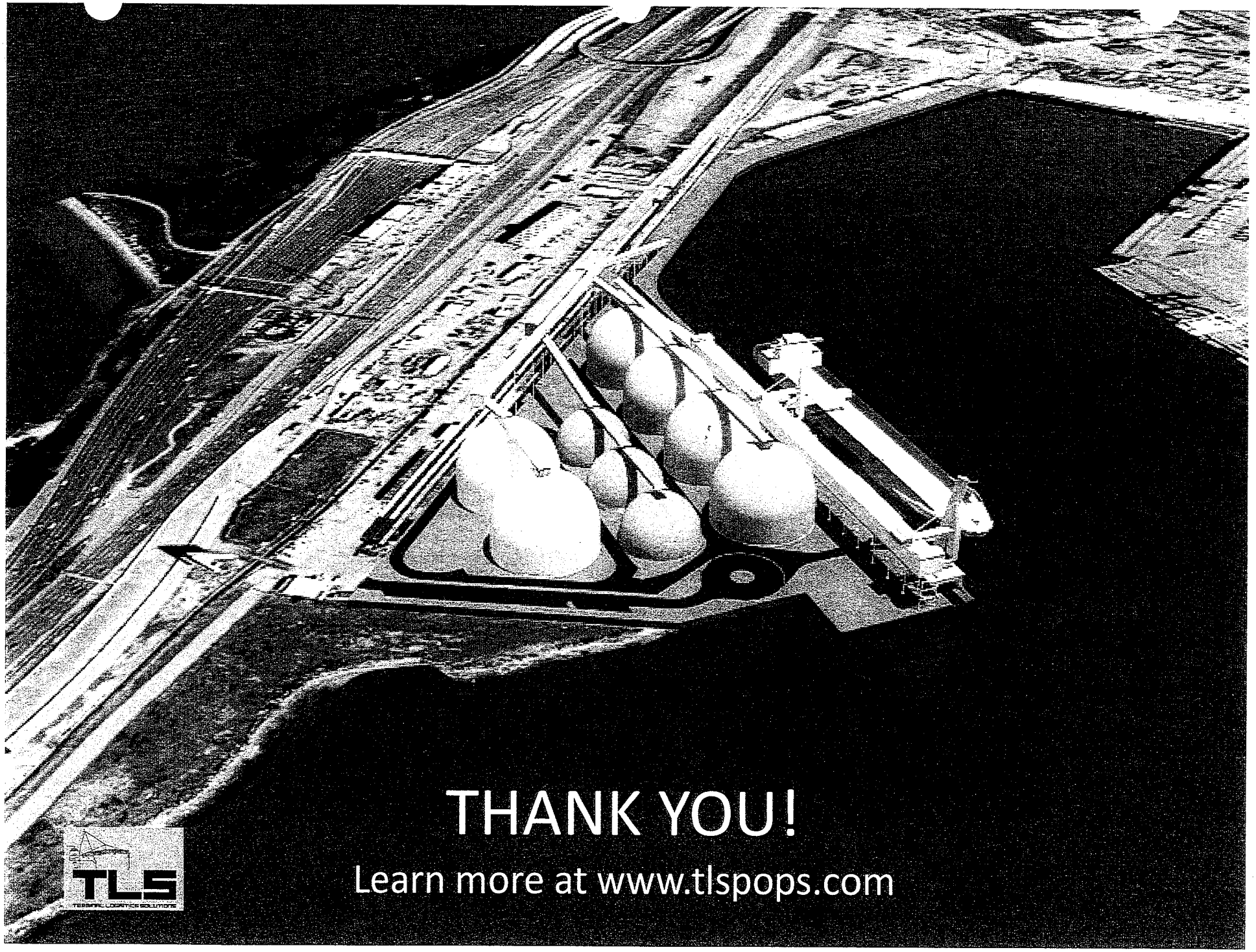
Construction

- Laborer
- Laborer - Highway Painter
- Laborer -Traffic Control
- Laborer - Landscape Maintanence
- Operating Engineer - Highway
- Operating Engineer - Landscape
- Field Surveyor
- Carpenter
- Asbestos Removal Worker
- Cement Mason
- Teamster
- Electrician
- Electrical Lineman
- Pile Driver - Carpenter
- Iron Worker
- Plumber

Terminal Operations

- Terminal General Manager
- Terminal Operations Manager/EHS
- Human Resources Manager
- Supervisor
- Accounting/Purchasing Clerk
- Administrative Assistant
- Vessel Operations Foreman
- Dock Foreman
- Ship Foreman
- Control room operator
- Beltwalker operator
- Shiploader operator
- Gearman
- Terminal Operations Foreman
- Foreman
- Locomotive operator
- Control room operator
- Basic terminal worker
- Mechanic leadman
- Mechanic journeyman

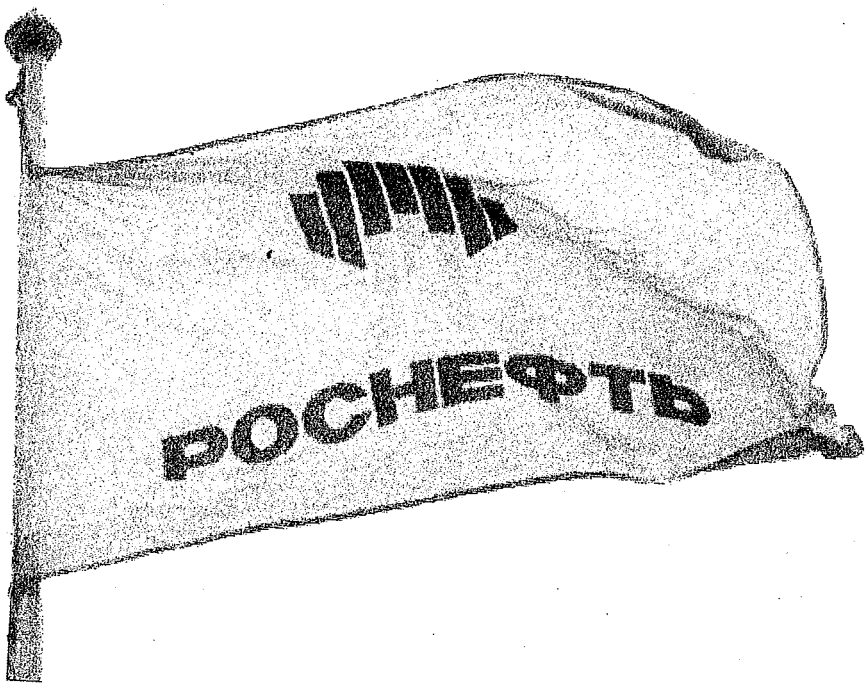
TLS


THANK YOU!
Learn more at www.tlspops.com
TLS

Foreign Firm Funding U.S. Green Groups Tied to State-Owned Russian Oil Company

Executives at a Bermudan firm funneling money to U.S. environmentalists run investment funds with Russian tycoons

SHARE
TWEET
EMAIL



BY: Lachlan Markay
January 27, 2015 5:00 am

A shadowy Bermudan company that has funneled tens of millions of dollars to anti-fracking environmentalist groups in the United States is run by executives with deep ties to Russian oil interests and offshore money laundering schemes involving members of President Vladimir Putin's inner circle.

One of those executives, Nicholas Hoskins, is a director at a hedge fund management firm that has invested heavily in Russian oil and gas. He is also senior counsel at the Bermudan law firm Wakefield Quin and the vice president of a London-based investment firm whose president until recently chaired the board of the state-owned Russian oil company Rosneft.

In addition to those roles, Hoskins is a director at a company called Klein Ltd. No one knows where that firm's money comes from. Its only publicly documented activities have been transfers of $23 million to U.S.

environmentalist groups that push policies that would hamstring surging American oil and gas production, which has hurt Russia's energy-reliant economy.

With oil prices plunging as a result of a fracking-induced oil glut in the United States, experts say the links between Russian oil interests, secretive foreign political donors, and high-profile American environmentalists suggest Russia may be backing anti-fracking efforts in the United States.

The interest of Russian oil companies and American environmentalist financiers intersect at a Bermuda-based law firm called Wakefield Quin. The firm acts as a corporate registered agent, providing office space for clients, and, for some, "managing the day to day affairs," according to its website.

As many as 20 companies and investment funds with ties to the Russian government are Wakefield Quin clients. Many list the firm's address on official documentation.

Klein Ltd. also shares that address. Documents filed with Bermuda's registrar of companies list just two individuals associated with the company: Hoskins, Wakefield Quin senior counsel and managing director, and Marlies Smith, a corporate administrator at the firm.

According to documents filed with Bermuda's registrar of companies, Klein Ltd. was incorporated in March 2011 "exclusively for philanthropic purposes," meaning "no part of the net earnings … inures to the benefit of any private shareholder or individual."

"The company does not propose to carry on business in Bermuda," the documents stated.

The only publicly available documentation of any business conducted by Klein Ltd. were two Internal Revenue Service filings by the California-based Sea Change Foundation, which showed that Klein had contributed $23 million to the group in 2010 and 2011. Klein Ltd. was responsible for more than 40 percent of contributions to Sea Change during those years.
The foundation passed those millions along to some of the nation's most prominent and politically active environmentalist groups. The Sierra Club, the Natural Resource Defense Council, Food and Water Watch, the League of Conservation Voters, and the Center for American Progress were among the recipients of Sea Change's $100 million in grants in 2010 and 2011.

Neither Wakefield Quin nor Sea Change responded to multiple requests for more information about their relationships with Klein Ltd.

"None of this foreign corporation's funding is disclosed in any way," the Senate Environment and Public Works Committee wrote of the company in a report last year. "This is clearly a deceitful way to hide the source of millions of dollars that are active in our system, attempting to effect political change."
The Sierra Club, which received nearly $8.5 million from Sea Change in 2010 and 2011, launched its "Beyond Natural Gas" campaign the following year. The effort has become one of the largest and best-funded environmentalist campaigns combating fracking and the extraction of natural gas in general.

Sea Change's "skeletal staff quietly shovels tens of millions of dollars out the door annually to combat climate change. And that's pretty much all it does," noted Inside Philanthropy, which awarded the foundation its "sharpest laser focus in grantmaking" award last year.
Nathaniel Simons and his wife run the foundation and are, except for Klein Ltd., its only donors. Simons, a hedge fund millionaire whocommutes to work across San Francisco Bay aboard a 50-foot yacht, also runs a venture capital firm that invests in companies that benefit from environmental and energy policies that Sea Change grantees promote.
Simons himself has ties to Klein Ltd. Several Wakefield Quin attorneys are listed as directors of hedge funds that his firm manages, and in which Sea Change has assets.

Senior counsel Rod Forrest was listed on documents filed with the Securities and Exchange Commission as a director of two investment funds, Medallion International Ltd. and Meritage Holdings Ltd., in which Sea Change had tens of millions invested while it received money from Klein Ltd.
Simons' company runs the Meritage Fund. The Medallion Fund is run by Renaissance Technologies, the hedge fund management firm run by his father, billionaire and Democratic mega-donor Jim Simons. Both funds listed Wakefield Quin's Hamilton, Bermuda, address on SEC filings.

Wakefield Quin's Hoskins and Smith, as well as a number of other employees of Wakefield Quin, have worked in some capacity for companies or investment funds owned by or tied to Russian state-owned corporations and high-level officials in the country.

Hoskins, Forrest, and another Wakefield employee named Penny Cornell were all listed as executives of Spectrum Partners Ltd., a fund withoffices in Moscow, Cypress, and Bermuda, Cornell at the address of Wakefield Quin's offices.
According to a performance report for one of Spectrum Partners' funds, its portfolio consisted of "Russian and CIS [former Soviet state] securities and securities outside of Russia or CIS but having significant economic or business involvement with Russia and/or CIS."
As of 2008, more than half of the fund's holdings were in the oil and gas sectors.

Numerous executives at Wakefield Quin have ties to Russian oil and gas companies, including Rosneft, which is majority-owned by the Russian government and in 2013 became the largest oil company in the world.

Hoskins is the vice president of a London-based company called Marcuard Services Limited, and a member of the firm's board, according to its website.

The company's president, and the chairman of its parent company, Bermuda-based Marcuard Holding Limited, is Hans-Joerg Rudloff. Rudloff is also a former vice-chairman of the Rosneft's board.
Hoskins is also a director at a Bermuda-based subsidiary of Russian investment bank Troika Dialog. That firm organized an initial public offering for Timan Oil & Gas, which is run by Russian oligarch Alexander Lebedev.
The Environmental Policy Alliance, which provided the *Washington Free Beacon* with a copy of an upcoming report on Klein Ltd.'s Kremlin ties, said Wakefield Quin's ties to environmental financiers and Russian oil barons merit closer scrutiny.
"The American public deserves to know whether environmentalists are attacking US energy companies at the behest of a Russian government that would like nothing more than to see their international competition weakened," Will Coggin, a senior research analyst at the EPA, said in an emailed statement.

"In the face of mounting evidence, environmental groups are going to have to start answering hard questions about their international funding sources," Coggin said.

The overlap between executives at firms with ties to Russian oil interests and a multi-million-dollar donor to U.S. environmentalist groups has some experts worried that Russians may be replicating anti-fracking tactics used in Europe to attack the practice in the United States.

"I have met allies who can report that Russia, as part of their sophisticated information and disinformation operations, engaged actively with so-called non-governmental organizations—environmental organizations working against shale gas—to maintain European dependence on imported Russian gas," Anders Fogh Rasmussen, formerly NATO's secretary general, said last year.
It is unlikely that the Kremlin is directly involved in doing so in the United States, according to Ron Arnold of the Center for the Defense of Free Enterprise.

"If anybody in Russia is behind all the secretive Bermuda investment house and law firm action, it's most likely some oligarch bidding against U.S. competition," he said in an email.

Arnold, the author of *Undue Influence: Wealthy Foundations, Grant Driven Environmental Groups, and Zealous Bureaucrats That Control Your Future*, said that the opacity of Klein Ltd.'s involvement with the Sea Change Foundation exemplifies attempts to shield the source of donations to such groups.

"In my experience of trying to penetrate offshore money funnels for U.S. leftist foundations and green groups, I have found that Liechtenstein, Panama and Bermuda are the Big Three green equivalents of the Cayman Islands for hedge fund managers—totally opaque and impervious to my specially designed research tools," Arnold said.

The New York Times http://nyti.ms/1N9XIu9

ENERGY & ENVIRONMENT

A Crusader in the Coal Mine, Taking On President Obama

By JAD MOUAWAD APRIL 30, 2016

ST. CLAIRSVILLE, Ohio — The rolling hills of eastern Ohio show few signs of the frenzied activity unfolding hundreds of feet underground. Inside the Powhatan No. 6 mine, a machine the size of a city bus is slowly slicing the earth, scraping out coal and sending it on a 40-minute ride to the surface.

"It will see the light of day for the first time in 200 million years," says Robert E. Murray, the 76-year-old chairman of the Murray Energy Corporation, rolling toward the coalface, where the coal is cut out of the rock, in an electric cart.

The digging occurs at the distant end of a forbidding maze of tunnels stretching more than 16 miles into the earth. The walls are coated with "rock dust," or pulverized limestone, which acts as a fire retardant and gives the place a chalky, ethereal appearance. It is mostly silent but for the occasional whoosh of air venting from above.

This is a special place for Mr. Murray, who likes to tell the story of how he sold his children's toys and mortgaged his home to acquire this mine — his first — nearly 30 years ago. He went on to build the nation's largest independent coal producer by pioneering efficient new technologies like longwall mining, where the cavern

ultimately collapses in on itself after yielding considerably more coal than traditional underground mining methods.

Mr. Murray is also the architect of the most serious challenge to the Obama administration's environmental goals, particularly its policy on climate change. He has filed more than a half dozen lawsuits against the administration, including several challenging its landmark policy to curb greenhouse gas emissions from coal-fired power plants. In February, he scored a big victory when the Supreme Court temporarily blocked the administration's plan until an appeals court can consider an expedited challenge this summer.

The expansion of its mining business at a time of deep industry disillusionment, coupled with an activist agenda, has made Murray Energy one of the leading forces combating environmental regulations. And it has made Mr. Murray a galvanizing champion of a once dominant industry fallen on hard times.

For him, any attempt to regulate pollution from power plants is a plot not only to destroy coal producers in the Unite$ States but also to take control of the nation's electrical supply. He blames regulators in Washington intent on accumulating power and handpicking winners and losers. "What it is is a political power grab of America's power grid to change our country in a diabolical, if not evil, way," he says. "Thank you, Obama!"

As the nation struggles to come to terms with greenh/use gas emissions, climate change and mining's environmental toll, Mr. Murray stands at the center of the economic, social and political debate. His life goal is to see that coal production in America remains vibrant — even as his critics say he is waging a doomed, rear-guard battle against inevitability.

Electricity from fossil fuels, including coal, remains the single biggest contributor to global carbon emissions, which scientists blame for rising temperatures.

The business faces challenges from not only toughening environmental standards but also cheap natural gas resulting from the practice of hydraulic fracturing, or "fracking" — breaking up the bedrock to extract more oil and gas. This

year, for the first time, natural gas is expected to pass coal as the main source of fuel for power plants.

A Life in the Mines

If Mr. Murray helped remake the modern American coal industry, then coal made the man. He started mining at age 16, a few years after a mining accid%t left his father paralyzed. His own neck has been broken three times. Over the years, his technological expertise has helped keep mines working that might otherwise have been shuttered long ago.

And he says he vehemently believes that humans are not responsible for global warming. Last year, he said Pope Franci3 was "totally wrong" for calling climate change an urgent issue.

On this day, Mr. Murray descended into the Powhatan No. 6 mine for what would probably be his last visit. The mine will close in November when it comes to the end of its productive life after nearly a half-century in operation. Most of the 431 miners are likely to be laid off.

"This is a human issue for me," Mr. Murray says. "It kills me. Lives are being destroyed deliberately by some and by the ignorance of most."

Moving deeper into the mine, he passes a pair of men drilling into the ceiling. "We appreciate your work," he tells them.

Despite the obstacles, Mr. Murray is doubling down. In 2013, his company acquired the coal business of Consol Energy for $3 billion, nearly doubling its mines with the addition of five more. Last year, it bought a stake in Foresight Energy in a $1.37 billion transaction. Murray Energy now has the capacity to produce about 10 percent of the nation's coal.

"The coal industry is being destroyed," he says. "And it's scary to me because electricity is a staple of life — like potatoes were to the Irish. And Obama has largely destroyed reliable, low-cost, affordable electricity in America."

The day was taking its toll on Mr. Murray, who had been up since 5 a.m. and had flown by helicopter to a meeting in Akron with one of his biggest customers, the FirstEnergy Corporation. That meeting, which lasted six and a half hours, had not gone well. The sides could not agree on a new price for coal, with the power utility demanding more concessions from its supplier.

The walls of Murray Energy's corporate offices are lined with mementos and pictures, and his own office is decked with small military plane models. Nearby stands a recent Christmas gift from a customer: a life-size statue of Mr. Murray, wearing a Scottish kilt in the Clan Murray tartan.

Coal mining runs in the family. Mr. Murray is a fourth-generation miner, and his three sons all work for the company. His father was paralyzed from the neck down after falling in a stairway in 1948, when Mr. Murray was 9 years old.

Those were tough days, he says, chicken dinner once a week. "We never bought fish," he says. "Too expensive."

He spent 16 years working underground, earning a degree in mining engineering along the way, and rising through the ranks of the North American Coal Corporation. He helped develop new mines in Ohio and North Dakota, among other places, and broke his neck in mining accidents in 1963 and 1969 (and in a car accident in 1987). By 1983, had become the company's chief executive.

He was fired in 1987 over a disagreement with the board on dissolving and reincorporating the company in Delaware. Mr. Murray says the move was designed to shed employee benefits, and he refused to go along.

Within a year, with the backing of a local utility, the Cleveland Electric Illuminating Company, now called the FirstEnergy Corporation, he secured financing to buy the Powhatan No. 6 mine. He knew it was not being used to its full potential. And he had some ideas for fixing that.

One of the biggest expenses in mining, aside from getting the coal out of the ground, is transportation. Here, Mr. Murray took a novel approach.

On a map, he drew circles around power plants located near rivers — cheap transportation — then went shopping for mines nearby. Despite new environmental regulations on the horizon, he knew that even low-quality, high-sulfur coal could still be mined, provided that plants were equipped with scrubbers. He snapped up mines for a song.

Then, his masterstroke: longwall mining, which he helped perfect.

In traditional mining, individual "rooms" are cut into a coal seam and then supported by pillars to prevent a collapse. The result is that a lot of coal is left behind in the walls between the various rooms.

Longwall mining, on the other hand, extracts almost every last bit of coal.

It works like this: First, miners cut two parallel tunnels, often miles long, along either edge of the coal seam. After that, the longwall machine — a $350 million articulated piece of equipment equipped with a giant power drill — simply moves back and forth between the two tunnels, cutting off the coal face in three-foot slivers, like a giant salami slicer.

As the machine completes a pass, the excavated parts of the mine collapse. It's more efficient and, Mr. Murray argues, safer.

The longwall machine can produce about 25,000 tons daily, a significant improvement on traditional underground methods, which typically produce up to 2,000 tons of coal a day in a section. Today, Murray operates 17 of the 40 longwall mines in the nation.

"He's been pretty darn successful at it," says Bob Hodge, a coal expert at IHS Energy, a consulting firm. "And he answers only to Bob Murray."

Black-Rock Blues

The fact is, coal's century-long dominance is ending. As recently as 2008, it accounted for more than 50 percent of electric power. But last year, that slipped to about 33 percent. And natural gas is expected to overtake coal as the single largest

fuel for electricity production for the first time this year, according to the Energy Information Administration.

One reason is fracking, which has pushed down gas prices. The other major coal killer is the adoption by the Obama administration of more stringent standards to regulate carbon emissions and other pollutants that contribute to climate change or are harmful to human health.

These regulations have prompted utilities in recent years to shut more than 400 coal-fired plants that could not comply with the new rules or would be too costly to upgrade with pollution controls. Coal plants retired last year equaled the entire coal capacity of Britain, according to the Sierra Club.

The impact on mining has been swift. Coal production in the United States peaked in 2008 at 1.17 billion tons. It has since fallen 24 percent to its lowest level in 30 years.

A November study by the consulting firm McKinsey & Company refers to the coal business as a "slow-motion train wreck" and estimates that the industry is about $45 billion short to cover all its debts and liabilities. Those would include pensions and employee-retirement benefits, as well as the cleanup cost of shuttered mines.

More than 40 producers have filed for bankruptcy protection in recent years, including some of the biggest. "The situation for coal in the United States is about as bad as it has ever been in modern history, and maybe even beyond that," says Mark Levin, an analyst with BB&T Capital Markets. "I don't think we're done."

This is taking a toll on mine workers, whose numbers have shrunk by 19 percent in the last three years, to about 75,000. A typical miner earns $83,700 a year, according to the National Mining Association. For a laid-off worker with only a high school diploma, if that, that kind of pay is nearly impossible to find.

"We're getting shelled," says Ryan Murray, the youngest of Mr. Murray's three sons and the company's director of operations. "We have to fight back out of necessity."

The company has opposed the Obama administration over a variety of new regulations

One, known as the Stream Protection Rule, was proposed to limit surface mining near waterways. Mr. Murray argues that it would effectively condemn longwall operations as well by prohibiting underground mining under vast tracts of land. The company filed 14,000 pages of comments opposing the rule, which is still under consideration.

Another is the Mercury and Air Toxics Standards, which set limits on air pollutants like mercury, arsenic and metals. Murray Energy sued the Environmental Protection Agency and won a major victory last year after the Supreme Court struck down the rule.

But the celebration was short-lived for coal producers. While the case was wending through the courts, utilities did not wait for a legal resolution. Those most affected shut plants that wouldn't meet the regulations.

A bigger battle still is taking place over the Clean Power Plan, a cornerstone of the Obama administration's international commitment to cut carbon emissions. The plan would, by the year 2030, reduce carbon emission from power plants by 32 percent from 2005 levels. It was a major part of the administration's pledge to reduce carbon emissions made at the international Paris Climate Conference, in December.

The power plant rule leaves it up to each state to find ways to reduce emissions by shifting away from coal to cleaner energy sources, including renewable energy and natural gas. Murray filed an early challenge to the draft rules, and 29 mostly Republican-led states and other coal producers eventually joined.

Their challenge argues that the E.P.A. does not have the power under the Clean Air Act to regulate carbon emissions and that the rules violate state sovereignty and state power to regulate local utilities.

In February, the Supreme Court temporarily blocked the administration's initiative, dealing an early blow to the policy, though it did not rule on the merits of the case. Also, the ruling was issued by a court divided along ideological lines.

The United States Court of Appeals for the District of Columbia Circuit is expected to hear oral arguments on the legality of the regulation in June. Ultimately, both sides are expected to appeal to the Supreme Court if they lose. This time, the parties could face a court evenly split between its left-leaning and right-leaning factions since the death of the conservative justice Antonin Scalia.

Fighting Words

The day after his coal-mine visit, Mr. Murray delivered a lecture at West Liberty University, a small public college in nearby West Virginia. There, about 150 students packed a hall to earn extra credit for their business class.

Mr. Murray came with a five-page speech titled "The Ongoing Destruction of a Major American Industry," which, among other things, described the "regal, outlaw Obama administration." But once he reached the lectern, the speech was forgotten. Instead, Mr. Murray spoke extemporaneously.

He warned the students about government bureaucrats ("They are rejects compared with people in the private sector"); about Bernie Sanders ("The problem with socialists is that they eventually run out of other people's money," paraphrasing Margaret Thatcher); about the leading Republican presidential candidate ("I'm not sure about Donald Trump"); and about Ivy League schools ("These schools are lousy").

He announced that he was organizing a fund-raiser for Ted Cruz, though he pointed out that he was not endorsing him.

And finally, he shared his views on what he described as the Obama administration's lies about global warming. It doesn't concern Mr. Murray that his climate views run counter to the scientific consensus, which has found that warming is "unequivocal," according to the latest report from the Intergovernmental Panel on Climate Change.

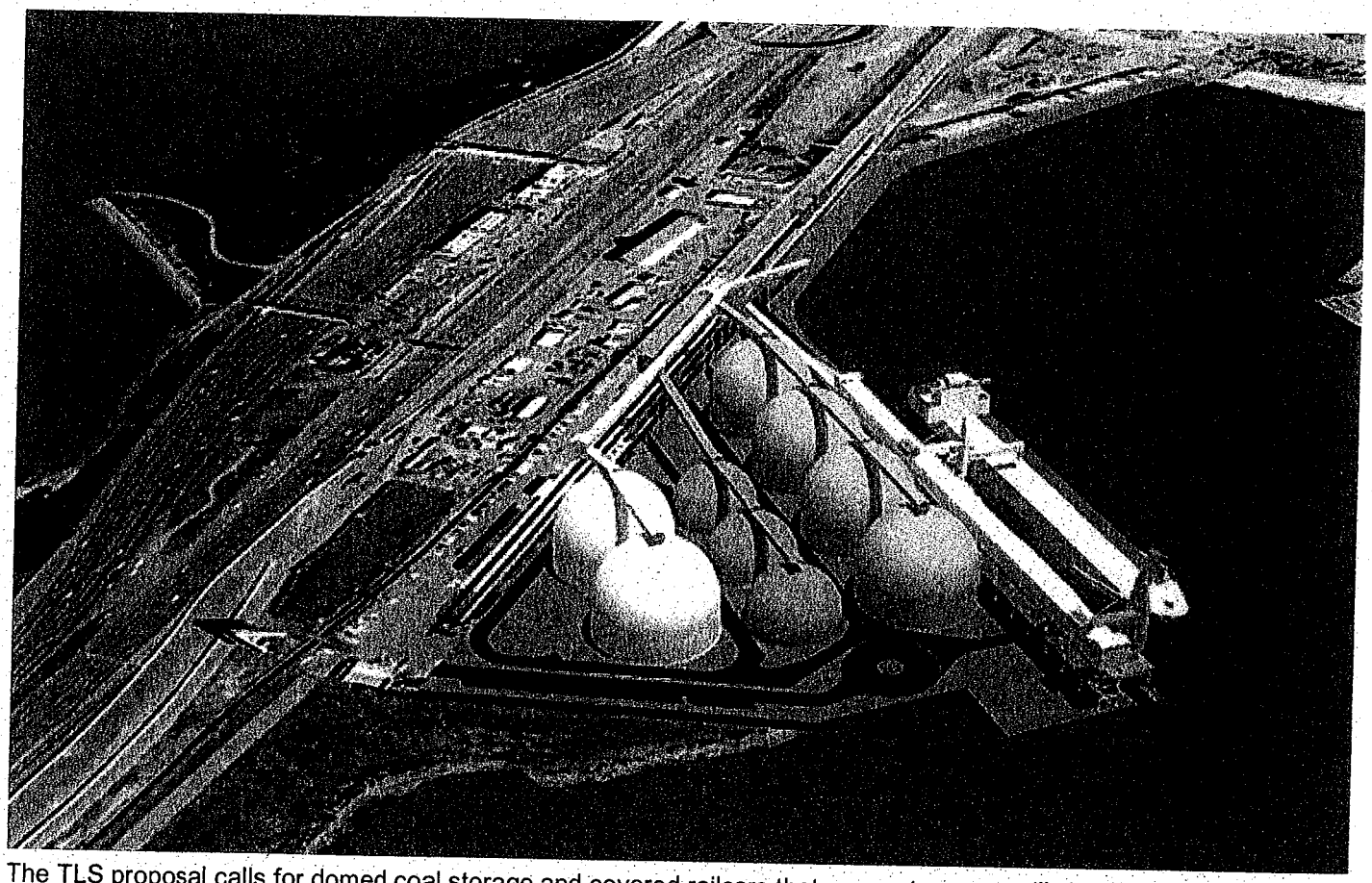
"This global warming hoax," Mr. Murray told the students, "it's a movement that is destroying America."

A version of this article appears in print on May 1, 2016, on page BU1 of the New York edition with the headline: Crusader in the Coal Mine.

© 2016 The New York Times Company

COAL Is a Four-Letter Word

We all know coal is a four-letter word. The San Francisco Bay Chapter of the Sierra Club doesn't like coal and is apparently willing to tune the facts, make implications and otherwise stir the emotions to convince you that coal moving through Oakland will be poisonous.



The TLS proposal calls for domed coal storage and covered railcars that, supporters say, will significantly reduce dust and pollution.

By W.G. Claytor

We all know coal is a four-letter word. The San Francisco Bay Chapter of the Sierra Club doesn't like coal and is apparently willing to tune the facts, make implications and otherwise stir the emotions to convince you that coal moving through Oakland will be poisonous. If their case against export coal is as strong as they imply, there would be no need to take liberties with the facts. It is clear that the local Sierra Club wishes to influence your opinion about the proposed Oakland commodities terminal and, in particular, the portion dealing with coal. Here's how they do it:

The San Francisco Bay Chapter of the Sierra Club has a website with a link to a "fact sheet" about the proposed Oakland export terminal. First up is a picture of a bulk carrier at a coal terminal, with open piles of coal nestled down almost to the water. The implication is clear. This is what the coal terminal would look like. They don't want to bother you with the fact that the picture is of a foreign port and the Oakland commodities terminal would look nothing like what is depicted. In a further effort to make the scene "generic," the Sierra Club's picture has been altered to remove the ship's name and funnel markings.

In reality, the Oakland terminal would hold the coal in encapsulated domes (depicted above) after arriving in covered freight cars, and them moving through fully enclosed conveyers out to covered ships. In short, a state of the art, nearly dust-free terminal. This would be one of the first in the country and would demonstrate to other ports, both here (Richmond, Stockton) and abroad that there is a cleaner way to handle coal and other bulk commodities. The project may be reviewed at tls.com. Note that one of the Sierra Club's biggest concerns is particulate matter in the air (dust). Great attention is paid to the purported hazards of coal dust generated by open coal hopper cars, and they are pictured as if the proposal would use such cars. The fact is that the proposal calls for covered rail hoppers.

The disingenuous "fact sheet" continues, and it says that the proposed Oakland Bulk and Oversized Terminal (OBOT) is "supported by" the $242 million in public Proposition 1B Bond funds approved for the Outer Harbor Intermodal Terminal (OHIT). Nowhere does the Sierra Club say that the public funds are planned to be used for the TLS (Terminal Logistics Solutions) bulk commodity site. But the manner in which these "facts" are presented strongly implies it. To be perfectly clear, no California bond funds, no public funds—that's zero dollars—are to be spent on the TLS Terminal. Let's say that again: No California public money is to be allocated for the export of coal. But there are benefits to Oakland from this project.

The commodities terminal operator, TLS, has planned to invest over $250 million for the proposed 66-year life of the project. Involved would be a construction payroll of $76 million and a residual payroll of $120 million. Much of this would accrue to local benefit. In fact, TLS has promised that at least 50 percent of the workforce would be from Oakland. But such inducements do not interest detractors, who seem to have concluded that this project does not deserve thoughtful and careful scrutiny.

Given that the proposed coal portion of the commodities terminal fails to generate coal dust, fails to use California public money, the last remaining objection is that burning the coal will create greenhouse gases offshore. Now this is indisputably true.

The rest of the world—particularly India, China and the Far East—has a growing need for dependable and affordable electricity. Locally available coal in these areas includes some high-sulfur bituminous and lots of lignite, a dirty coal that exceeds the particulate and carbon dioxide production of harder coals. Economics dictate that today's cheapest and most dependable electrical energy source is a steam-fired coal generating plant. Since this part of the world is underdeveloped, they will need to supply more and more electricity. Using locally sourced coal would generate more carbon dioxide, more particulates and more sulfur than using a better-grade coal. If inexpensive, low-sulfur coal is not available, these countries will burn what they can. Either way, coal will be burned to generate energy for the intermediate future.

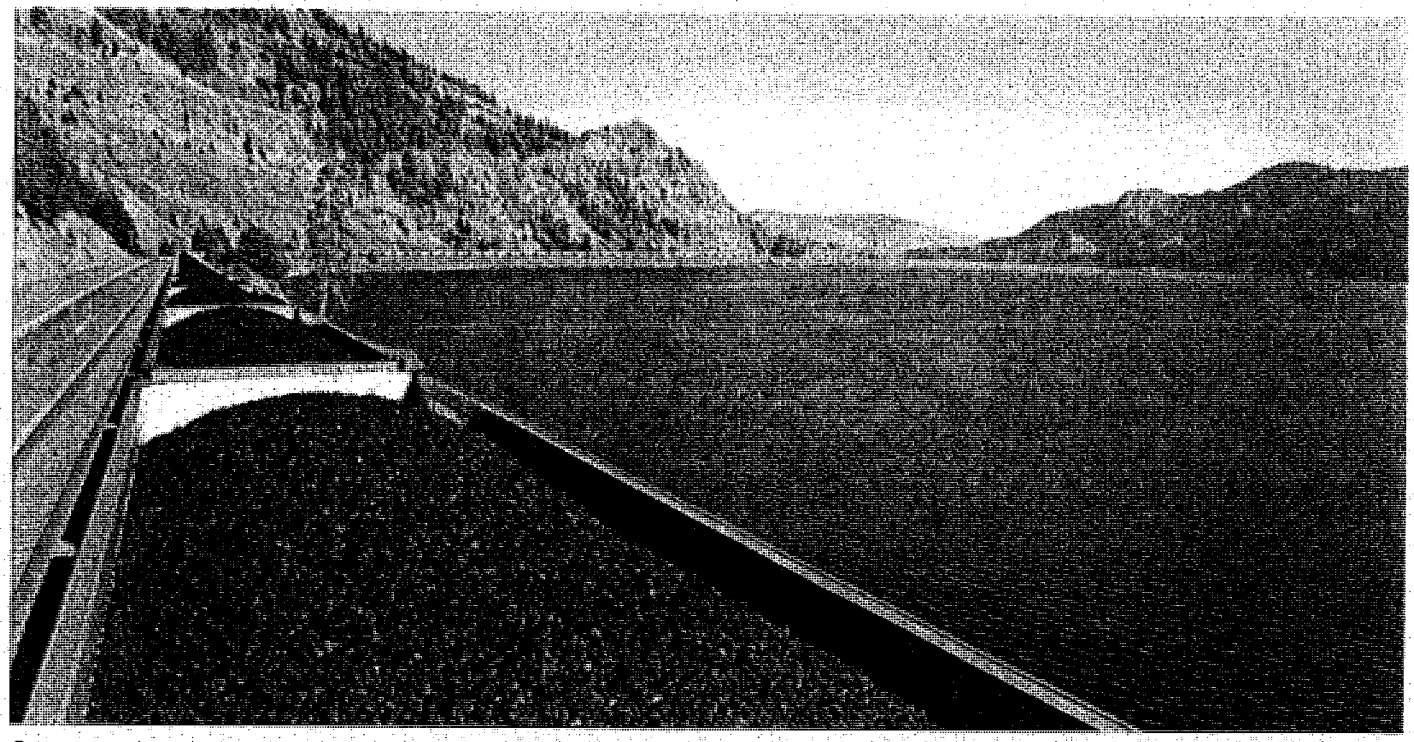
Excess capacity at our western coal mines makes this a potential win-win scenario for all involved. Without an export terminal for western coal, our neighbors in the Far East will burn far dirtier coal because to live, work and feed themselves, they must have electricity. If we allow a short-sighted antipathy to coal to keep us from seeing the temporary mitigation cleaner coal can deliver, then we all lose. We lose cleaner air in Asia, we lose the chance to reduce worldwide carbon and sulfur emissions and we lose thousands of jobs from mining, moving and exporting low-sulfur coal.

The essence of the program is to take a world-class problem—the shortage of electricity, food and jobs—and come up with the best possible temporary solution to buy time so that we can develop and install real-life, permanent solutions. Everybody knows that coal is a four-letter word. But not everybody knows that the Oakland terminal project will move low-sulfur export coal handled in a next-generation manner and that its use in Asia will actually reduce carbon emissions. This is an opportunity for Oakland to rise above a knee-jerk reaction and really look at the project in a holistic fashion.

W. G. Claytor III is Managing Director of Red Clay Consultancy, LLC, a rail transportation consulting firm based in Pulaski, Va. There is no compensatory relationship with any entity involved in West Coast coal exports.

"Clean Coal" is a Dirty Lie

Can 10 million tons of Utah coal per year be brought by train through the Bay Area and shipped from Oakland to Asia, without polluting neighborhoods and San Francisco Bay? Can such a scheme cut down on pollution in Beijing and even help reduce worldwide carbon emissions? The developers of a bulk shipping terminal in Oakland claim it can be done. Sadly, this is a lie.



Opponents of the terminal believe that open coal railcars pose threats to people and the environment. Photo by Daniel Dancer

By Sejal Choksi-Chugh

Can 10 million tons of Utah coal per year be brought by train through the Bay Area and shipped from Oakland to Asia, without polluting neighborhoods and San Francisco Bay? Can such a scheme cut down on pollution in Beijing and even help reduce worldwide carbon emissions? The developers of a bulk shipping terminal in Oakland claim it can be done. Sadly, this is a lie.

Baykeeper opposes the export of coal from Oakland, because coal would likely be shipped in open rail cars on tracks that run near the San Francisco Bay shoreline, and through cities that include Richmond, Berkeley, Emeryville, and West Oakland. All along the way, the trains would shed toxic dust and pieces of coal. Coal could also be spilled directly into the Bay while being loaded onto ships.

Coal contains arsenic, lead, mercury, chromium and other toxic heavy metals. Its effects range from asthma in kids to reproductive harm to fish.

But wait, say the developers. They claim the coal will be shipped in covered rail cars that would not pollute our neighborhoods and the Bay. But when coal gets overheated, it can explode. That's why it has always been shipped in open cars. If the covered cars have enough ventilation to prevent explosions, coal dust and small pieces of coal will still leak out. But even more importantly, the technology to safely ship coal in covered cars across the county hasn't been demonstrated.

The process of getting the coal from the train cars and onto ships for export also threatens the Bay with pollution. The developers claim it will all be done with "encapsulated domes" and "thoroughly enclosed conveyors." But if the domes and conveyors are too tightly enclosed, there's a risk of explosions—right on the Bay shoreline. If they are ventilated, toxic dust could be blown into the Bay.

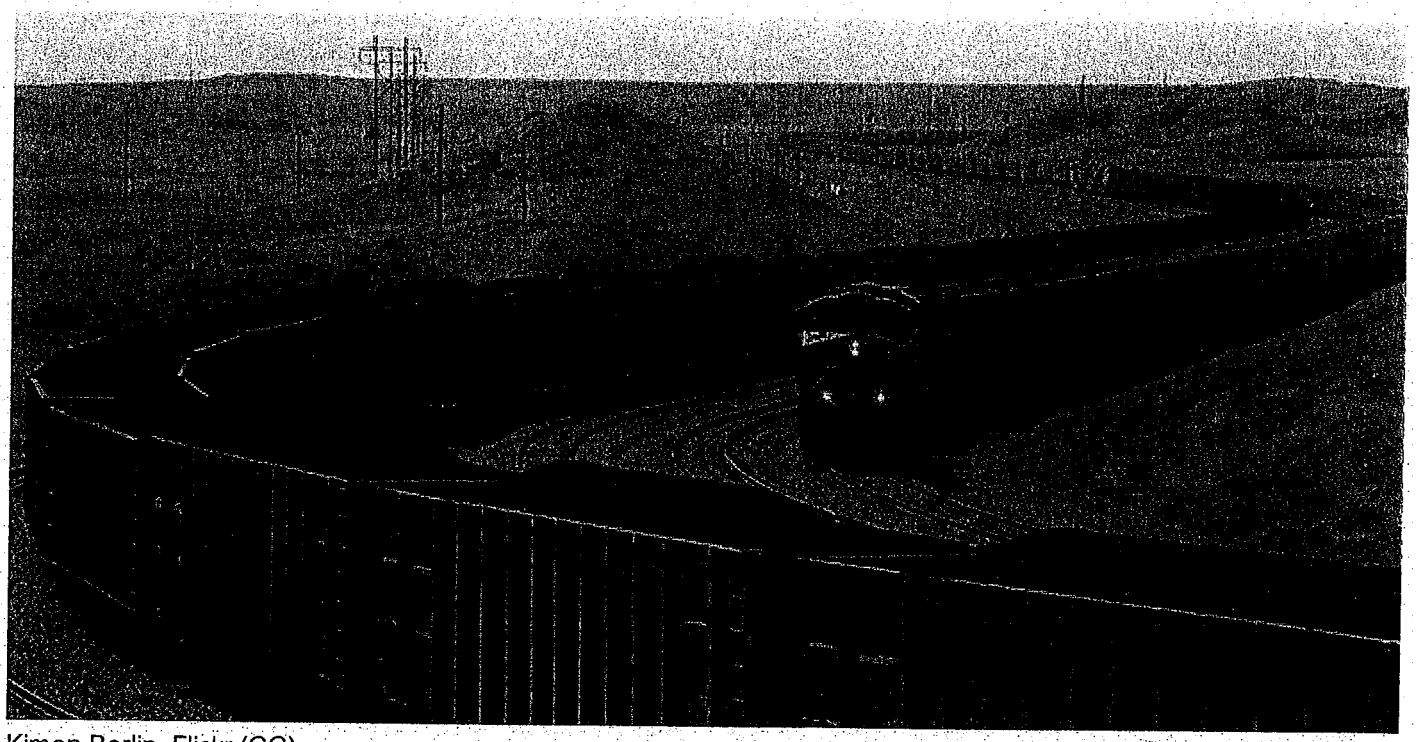
Is it true, as the developers claim, that no public money is being spent on the coal export terminal? The coal export terminal is part of the redevelopment of the former Oakland Army Base. Without the $242 million investment from the California Transportation Commission, the redevelopment would not be possible. The state legislature of Utah also recently passed a bill providing $53 million in public money for the export terminal. In addition, Bowie Resources, the company whose Utah coal would be shipped to Oakland, will have control over the export terminal.

Finally, the developers claim that the Utah coal they want to bring here is cleaner, and that burning this coal will help reduce global climate change. "Clean coal" is a dirty lie. All coal contains toxic substances and generates large amounts of the gases that cause global climate change. The trains that bring the coal to the Bay Area would also burn fuel that produces pollution and gases that contribute to climate change, and so would the ships that take it away. There is no basis for the claim that shipping Utah coal halfway around the world to "India, China and the Far East" will be less polluting than using "locally available coal."

Baykeeper, the Sierra Club and many other environmental and community organizations are urging Oakland city leaders to prevent the export of coal from Oakland. We also support legislation introduced by State Senator Loni Hancock, SB 1277-1280, to restrict the export of coal from California.

As Governor Jerry Brown stated last summer, in order to avoid the worst effects of global climate change, "over 90 percent" of the world's known coal "can never be taken out of the ground." If California is serious about its commitment to reducing greenhouse gas pollution, the only thing we should be exporting from Oakland is our clean energy technology.

Sejal Choksi-Chugh *is the Executive Director of San Francisco Baykeeper. Baykeeper uses on-the-water patrols of San Francisco Bay, science, advocacy and the courts to stop Bay pollution. To report pollution, call Baykeeper's hotline at 1-800-KEEP-BAY, e-mail hotline@baykeeper.org, or click "Report Pollution" at* **baykeeper.org.**



Kimon Berlin, Flickr (CC)

Building and Construction Trades Council of Alameda County, AFL-CIO

100 Hegenberger Road, Suite 120
Oakland, Ca. 94621 – btca@btcalameda.org
(510) 430-8664, Fax 430-8128

Andreas Cluver
Secretary-Treasurer

Rob Stoker
President

Fernando Estrada
Vice President

Auto & Marine Painters, #1176
Boilermakers, #549
Brick & Tile Layers, #3
Carpenters, #713
Carpenters, #2236
Carpet & Linoleum, #12
Cement Masons, #300
Electrical Workers, #595
Elevator Constructors #8
Glaziers #169
Hod Carriers, #166
ntors & Asbestos Workers, #16
Workers, #378
aborers, #67
Laborers, #304
Lathers, #68L
Millwrights, #102
Operating Engineers, #3
Painters, #3
Pile Drivers, #34
Plasterers, #66
Plumbers & Steamfitters, #342
Roofers, #81
Sheet Metal Workers, #104
Sign & Display, #510
Sprinkler Fitters, #483
Teamsters, #853
U.A., Utilities / Landscape, #355

August 27, 2015

Mayor Libby Schaaf
1 Frank H. Ogawa Plaza, 3rd Floor
Oakland, CA 94612

Members of the Oakland City Council
1 Frank H. Ogawa Plaza, 2rd Floor
Oakland, CA 94612

Dear Mayor and Councilmembers,

On behalf of the 28 Affiliated Unions that are a part of the Building and Construction Trades Council of Alameda County, I would like to weigh in on the current debate regarding the proposed coal moratorium that is being considered by the Oakland City Council. This Building Trades Council has not taken a formal position as to either the safety of Coal transport to both workers handling coal and the residents of track-adjacent communities, or the impact of coal transport on the broader issue of global climate change. However, our main concern is to ensure that the development of the Oakland Army Base not be jeopardized by either unsubstantiated claims or global concerns in which we have no real influence.

For almost the past decade, the Building Trades have been part of a Labor-Community initiative that has promoted the development of the Oakland Army Base in a way that maximizes the job opportunities to disadvantaged residents of Oakland and specifically West Oakland. This partnership culminated in a set of agreements between the City, Community, Labor, and the Developers. These agreements not only ensured that the majority of the jobs for both the construction and the operation of the Army base would be "middle class" union jobs, but established both the requirements and a pathway to encourage local disadvantaged residents to be employed on the Army Base and start true sustainable careers in either the construction or the warehousing industry. In fact, the data up to now on the construction side has Oakland residents performing over 50% of the work hours on the project with 30 new hire Oakland Apprentices working on the job. In this light, I strongly urge the decision-makers in Oakland to take no action that would threaten the continued creation of thousands of good careers for Oakland Residents.

While there is no doubt that the burning of fossil fuels, including coal, is significantly contributing to the Global Climate Change which threatens all of us, the way to take on the issue is primarily through increasing the viability of alternative renewable energy sources. The Building Trades have been leaders on these efforts and we have a strong track record in Alameda County of promoting non-fossil fuel initiatives. Prior to any decision on a moratorium, there should be a serious discussion around the issue of whether eliminating certain transport routes

for coal will change the global consumption patterns of coal. We understand that at a minimum, through the moratorium, Oakland will be making a symbolic statement regarding climate change, but is that worth the loss of potentially thousands of middle class careers for disadvantaged local residents if the Army Base does not move forward as a result?

We strongly urge this council and administration do what is right for the development of Oakland by ensuring the continued development of the Oakland Army Base, and help Oakland residents get into careers that will help lift them out of poverty.

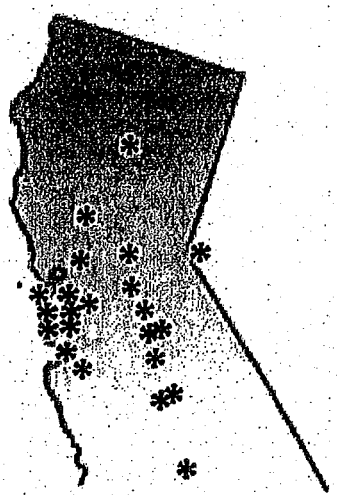
Sincerely,

Andreas Cluver
Secretary-Treasurer

AC:op
opeiu:29/afl-cio

TEAMSTERS JOINT COUNCIL NO. 7

Affiliated with the International Brotherhood of Teamsters



Organized November 18, 1907
United with JC# 38 January 1, 2010

Executive Board

Rome Aloise
President

Carlos Borba
Vice President

Dave Hawley
Secretary-Treasurer

Mark Gleason
Recording Secretary

Maria Ashley Alvarado
Trustee

Peter Finn
Trustee

Peter Nunez
Trustee

August 5, 2015

Mayor Libby Schaaf
#1 Frank H. Ogawa Plaza, 3rd Floor
Oakland CA 94612

Members of the Oakland City Council
#1 Frank H. Ogawa Plaza, 2nd Floor
Oakland CA 94612

Dear Mayor and Councilmembers,

On behalf of over 100,000 Teamsters in Northern California, the Central Valley, and Northern Nevada – including 5,000 in Oakland – I am writing concerning the issue of coal shipments and the redeveloping Oakland Army Base. My apologies in advance for what is a lengthy letter, but I hope it impresses upon you how complicated this issue appears to be and why we need thoughtful leadership from our elected officials.

First and foremost, the Teamsters refuse to be put in a box that because we support the project we are against the environment and the community. We will never accuse any organization or individual who opposes coal shipments of being against good jobs for Oakland. The situation is more nuanced than that, and anyone who wants to paint this as a black-and-white issue is doing a disservice to Oakland.

We think this issue deserves a thoughtful approach free of rhetoric, politics, and personality attacks. And we call on you as Oakland's elected leaders to lead with principle.

The Teamsters worked very closely for many years with opponents of this project, including the Sierra Club, the West Oakland Environmental Indicators Project, and West Oakland Neighbors, to reduce the harmful impact of diesel particulate matter from port trucks on fence line communities including West Oakland and the 880 corridor. After years of work, many of those same organizations joined us in signing a historic Community Jobs Agreement with the City and the Developers cementing our commitment to this project. The City engaged hosts of organizations and individuals in a multi-year process of planning and advocating for this process, and now some of you would put the brakes on it without re-engaging all of the stakeholders. That's bad government.

One principle we learned from the environmental justice advocates is that workers on the front line of environmental impacts must be included in the process. Yet none of those same advocates reached out to our union before coming out in

250 Executive Park Boulevard, Suite 3100, San Francisco, CA 94134-3306 • 415.467.7768 • Facsimile 415.467.1022
E-Mail:teamjc7@teamjc7.org

opposition. All this despite the fact that Teamsters include locomotive engineers and maintenance of way workers who deal with coal (and all trains) in North America; ready-mix and material supply truck drivers building this project; and future warehouse workers and rail yard workers once it's complete.

Over 74,000 Teamster members in the rail industry have been vocal about the need for mitigating any health hazards associated with what is shipped in uncovered rail cars, including contaminated dirt, silica and other items – many of which are currently permissible through the project as it is entitled. Teamsters drive trains carrying materials such as coal daily, including periodic shipments through Oakland and Richmond. Open-top coal trains are carefully loaded and sprayed with "topper agents" after they are loaded. These adhesive sprays aim to minimize dust and commodity loss as the trains make their way to their destination. That being said, our members believe that covered cars, such as those that are expressly planned by Terminal Logistics Solutions ("TLS"), will provide the strongest protection available for themselves and track-adjacent communities from the dust that could emanate from any products, including coal.

In fact, there seems to be universal consensus that covered cars provide superior protection to topper agents to minimize the dust from all products. Environmental organizations including Sierra Club chapters throughout the country are fighting for covered cars and enclosed facilities. Yet the question has been who will pay for it? The utilities? The railroads? In some cases, the Federal Surface Transportation Board is handing down the verdict and making the industry pay, often in response to Sierra Club challenges. In this case, Terminal Logistics Solutions wants to pay.

Which brings us to the larger issue of coal as a commodity and industry, and the problem of climate change. That seems to be the real heart of the issue here. Our organization has not taken a position on coal. We acknowledge that a significant percentage of California's electricity is still derived from coal-powered generating stations located out of state, and we appreciate the Governor's recent strong statements on the need to deal with climate change. And while we admire Oakland's continued leadership on problems of global importance, we can't forget the need to solve Oakland's problems first.

We have over 700 members living in Council District Three, and the number one problem they say is jobs. We believe that jobs are just as much a public health issue as air-borne pollutants and climate change. But improvement on both fronts is possible, as this project demonstrates. This project promised to bring thousands of much-needed jobs back to Oakland – particularly West Oakland. We set up a jobs center in West Oakland to put people to work. What do we tell them now? Sorry, we are closed for business?

At the same time, if there are serious health risk to workers at the project and adjacent communities, we deserve to know. That's why we fought for rigorous air monitoring immediately during construction and continuing forever during the operations of the project. What good are the jobs if they kill you? The fact of the matter is, jobs at the Port are dangerous and West Oakland and the 880 corridor historically have suffered the brunt of Port-related pollution. This is already well documented and the high-grade compliance coal that TLS is considering transloading will not change that fact. So do we want to sacrifice all of those jobs and the project? We hope your answer is no; we know ours is. Rather, we should look at how we can collectively push port-related businesses and regulators to impose strong standards that minimize pollution and protect worker and community health, regardless of what commodity may be shipped through the project.

For example, the South Coast Air Quality Management District (SCAQMD) passed Rule 1158 to "reduce the emission of airborne particulate matter from the storage, handling, and transport of coke, coal and sulfur."[1] This was in response to complaints from port-adjacent communities and environmental advocates concerning black, greasy airborne dust. The Rule was further amended in 1999 and 2008. In a nutshell, Rule 1158 requires rail cars and trucks to be covered and terminals to enclose their conveyor belts and stockpiles. The District conducted a follow-up study with sampling in 2005-2007 and concluded "pollution contributions from coal/coke have been reduced."[2] It is our understanding that the Bay Area Air Quality Management District is considering similar regulations. Oakland should support this rulemaking.

Likewise, with the multitude of conditions that the developers must comply with, shouldn't we applaud them for commitments for state-of-the-art technology? The Army Base project affords us an opportunity to set new environmental standards for operations throughout the Port area.

These are only some of the issues involving the proposed Terminal Logistics Solutions facility at the OAB. We hope that you agree that this deserves a thoughtful approach. In our opinion those who would threaten to kill the Army Base development or block funding for it are reckless, irresponsible, and disrespectful of the past several years of work. Too much is at stake. Let's

---

[1] http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1158.pdf?sfvrsn=4

[2] http://www.aqmd.gov/docs/default-source/air-quality/air-quality-monitoring-studies/rule-1158-follow-up-studies/rule-1158-follow-up-study-12-and-13-combo.pdf?sfvrsn=7

remember that there was a long, open, transparent process and ample negotiation with multiple community stakeholders and the developers that led to an unprecedented community jobs agreement. Let's consider how bad Oakland looks when it fails to honor its agreements or seeks a do over. This project will improve Oakland in many ways. If you truly do your due diligence and look at the issues, we believe this project more than balances out the needs of Oakland for good jobs and healthy communities. That is why we elected you, with the covenant that you would not blindly take up one perspective of any one constituency and do harm to others without a dialogue first.

The City of Oakland selected CCIG and ProLogis to build a trade and logistics center at the former Oakland Army Base, that includes a bulk multi commodity terminal as a "working waterfront," with the belief that it was the best use of a prized public asset and holds the greatest promise to deliver revenue to the City and good paying union jobs to the community. The process and the debate have long passed; a do over is not legally defensible. Let's put Oakland to work.

Respectfully yours,

Rome A. Aloise
President

Cc: Senator Barbara Boxer
Senator Dianne Feinstein
Congresswoman Barbara Lee
Governor Jerry Brown
Senator Loni Hancock
Assemblymember Rob Bonta
Assemblymember Tony Thurmond
Supervisor Keith Carson
Supervisor Wilma Chan
Supervisor Nate Miley
Art Dao, Alameda County Transportation Commission
Alameda Central Labor Council, AFL-CIO
Alameda County Building and Construction Trades Council
Marty Frates
Chris Lytle, Port of Oakland
Revive Oakland Coalition